WORKING PLAN

FOR

THE SAIDAPET FOREST DIVISION

BY

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Under the Direction of the Chief Conservator of Forests, Madras.

PARTS I AND II

©

GOVERNMENT OF MADRAS

1961

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INTRODUCTION.

1. The Cuddalore Working Plan Division was formed on the 25th of July 1955 to stock map the ex-panchayat forests in the Chingleput, North Arcot, South Arcot and Salem districts and prepare working plans for these forests in accordance with the orders contained in G.O. Ms. No. 1213, Agriculture, dated 12th May 1955. As the revision of the Working Plan for Salem South Division was in progress, prescriptions for the ex-panchayat forests in portions of Salem district lying in Salem South Division were included in that Working Plan. For forests in the Salem North Forest Division, separate schemes were prepared by the Working Plan Officer, Salem South Division. The preparations of schemes for management of ex-panchayat forest areas in the Harur taluk included in the Vellore West Division at that time were assigned to the Cuddalore Working Plan Division.

2. The present plan is to a certain extent a revision of the Working Plan for Chingleput Forest Division by Sri P. Venkataramani, M.A., I.F.S., and the Working Plan for Nellore Division by Sri M. H. Krishnaswami, B.A. The revision has been necessitated by inclusion of more Class III Reserved Forests for departmental management and the necessity for large-scale improvements under the Five-Year Plan.

The Cuddalore Working Plan Division was closed down on 30th April 1957. By that time the field work had been completed and the preparation of the Working Plans was on hand.

3. The entire work was done under the guidance of direction of Sri V. S. Krishnaswamy, M.A., I.F.S., as Conservator of Forests, Development Circle, and Chief Conservator of Forests. I express my gratitude to him for the kind help and the valuable guidance given to me during this work. I also wish to thank the subordinates attached to me for preparing this plan and the territorial staff for their willing co-operation.

E. S. THANGAM,
Working Plan Officer.

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WORKING PLAN FOR THE SAIDAPET FOREST DIVISION.

PART I.

Summary of facts on which the Proposals are based.

CHAPTER I—THE TRACT DEALT WITH.

SECTION 1—NAME AND SITUATION.

1. *Name.*—This Working Plan deals with the forests situated in the Saidapet Forest Division extending over 140,840.02 acres and will be known as Saidapet Working Plan.

2. *Situation.*—The Saidapet Forest Division comprises of the whole of the Madras District and the whole of the Ponneri, Tiruvellore, Saidapet and Sriperumbudur taluks and part of the Chingleput taluk of the Chingleput district. It is situated between the north latitudes 12° 40′ to 13° 42′ and the east longitudes 79° 41′ to 80° 22′. The Saidapet Forest Division with its present boundaries was constituted according to the orders contained in G.O. Ms. No. 2987, Food and Agriculture, dated 21st December 1956. It consists of four Range, viz., Satyavedue, Tiruvellore, Tambaram and Kelambakkam.

SECTION 2—CONFIGURATION OF THE GROUND.

3. *Topography.*—Major portions of the division lie over plains; a few low hills occur here and there and mostly in the north-west corner. Along the sea coast, there are ridges of blown sand. Behind these ridges there are back-waters connected together by the Buckingham canal, a waterway running along the entire length of the division near the coast and through the Madras City. The Pulicat lake in the north-east corner of Ponneri taluk and the one at Covelong in the north-east corner of Chingleput taluk are the chief back waters in the division.

4. *Regional types.*—Physiographically, the forests of this division can be divided into two regional types, viz., the plains and ghats. There are no maritime forests in this division.

5. *The Plains forests.*—Major portion of the forest areas are situated in the plains which are characterised by nearly level stretches of land traversed by rivers and streams which feed many tanks that supply water for wet cultivation. Many of the reserved forests situated in the plains also contain small isolated hillocks, e.g., Kumili Reserved Forest, Manjeri Reserved Forest. In addition, there are a few stray conical hills of ridges of low elevation outside the reserved forest limits, as the St. Thomas Mount, the Tiruneermalai and Pallavaram hills.

6. *The Ghats.*—The Kambakkam, Nagalapuram and Allikuli hills in the western part of the Ponneri taluk form a part of the Eastern Ghats. Short descriptions of these ghats are given below.

7. *The Kambakkam hills.*—These hills contain a plateau of about 2,500 acres in extent, spread over a culster of hills which from the outer spurs of the Eastern Ghats between the Nagari and the Kalahasti hills in Chittoor district. The highest point, Durgamkonda, is 2,540 feet high and rises from its base on the table land varying from 1,800 to 2,200 feet in elevation. The Kambakkam plateau commands a magnificent view of the Pulicat lake and the Bay of Bengal. A perennial stream called Chinnaklva rises from this platean and after falling over a rocky precipice of about 100 feet and meandering through the jungle, collects into several pools at the foot near Thantipandal, which is a popular picnic spot for the people around Madras. The plateau enjoys a cool and salubrious climate.

8. *The Nagalapuram hills.*—These hills are located to the south of the Kambakkam hills and rise to an elevation of about 2,500 feet. These hills include two great blunt peaks whose preciptions and naked sides stand out about the upped slopes like a couple of formidable bastions and from distant land marks. The ancient village of Nagalapuram is situated near the foot of the hills.

9. *The Allikuli hills.*—Further to the south of the Nagalapuram hills, the Allikuli hills are situated. The Allikuli channel takes its origin from these hills.

SECTION 3—GEOLOGY, ROCK AND SOIL.

10. *Geology and rock.*—The geological formations are of some interest in this division. The entire tract can be geologically divided into the following three broad classifications :—

(a) The metamorphic rocks mainly consisting of geniss, hornblende, charnockite, quartzite and others which are commonly seen in the hill ranges;

(b) the aqueuos rocks, of which the most common formation is the laterite, in various stages of formation, superimposed on the metamorhphic rocks; and

(c) the alluvial deposits which occur along the river banks and their deltas, and the coast-line and backwater areas.

11. Some of the interesting geological systems falling within the tract are detailed below. The Upper Gondwana System occurs in two places. The lower stage called after Sriperumbudur, consists of sandstones buff shales and clays containing marine animals and plant remains especially in the eastern part of the basin. The upper stage, found near Satyavedu, consists of purple mottled ferruginous sandstones and conglomerates which contain fragmentary plant fossils. They are underlain by the Sriperumbudur beds.

12. Overlaying the conglomerates of the Satyavedu beds in the valley of the Kortalayar river, there is a series of four terraces respectively 100, 60, 20 and 8 feet above the river bed. These contain implements which are referable to Abbevillian—Acheulian (first terrace), Acheulian (second terrace) Late Acheulian and Levalloisian (third terrace) and Upper Paleæolthic (fourth terrace).

13. In Vadamadurai area, Pleistocene boulder conglomerates containing the Abbevillian tools overlie the Upper Gondwanas. Above this is, detrital laterite and alluvium, the former containing Acheulian type of tools.

14. The Kancheepuram gravels contain a fairly large area of girts, gravels and shingles between the laterite and upper Gondwanas north of Kancheepuram.

15. *Soil.*—The types of soil met with are—

(a) laterite soil,

(b) red loamy soil,

(c) sandy soil,

(d) clayey soil, and

(e) kallar soil.

16. *Laterite soil.*—This kind of soil is commonly seen in Ponneri and Tiruvellore taluks near the hills in all stages of formation. While the advanced stages of laterization are seen only in outcrops of rocks here and there, the more common lateritic soil met with are the intermediate stages. Though very little vegetation comes up on the hard lateritic soil, the other soils of intermediate stage support vegetation. Cashew is formed to come up on such intermediary stage soils.

17. *Red loamy soil.*—This type of soil occurs largely in the inland reserve forests. Its depth varies from a few feet to even 20 feet at places. It is deep in the plains and becomes gravelly with rocky outcrops in hilly portions. Though the soil is lacking in humus content, it has fair moisture retentive capacity. From the wells found near the reserve forests in patta lands, water is met with at a depth of 15 to 20 feet. This red soil, sufficiently deep, is considered eminently suitable for raising cashew plantations.

18. *Sandy soil.*—The type of soil occurs along the coastal reserved forests and reserved lands as in portions of Kulathur Reserved Forests. The soil consists of sand with slight or meagre admixture of silt. The water holding capacity is poor. In these areas, casuarina appears to come up well during the first year when the plants are watered; but they appear not to thrive well during the subsequent years.

19. *Clayey soil.*—Such soil occurs in a scattred manner in some reserved forests as in Madurаipakkam Reserved Forest and Mambakkam Reserved Forest. As these soils contain more clay fraction that the sand, this lands peculiar qualities to it. The drainage is generally poor. Only certain type of vegetation flourish in these soils.

20. *Kallar soil.*—This soil type occurs in patches in several reserved forests as in Kulathur Reserved Forests, Kayar Reserved Forests and Taiyur Reserved Forests, Kallar is defined as ' soil efflorescence which appears on the surface of the Usur or alkaline soils. It consists mainly of carbonates, sulphates and chlorides of sodium with any of them as their chief salt '. The vegetation that comes up in these soils seems to depend on the extend of ' kallar ' formation in the soil. Where the formation is complete, nothing comes up and the area presents a whitish to greyish appearance on the surface. In places

with lesser development, grasses and species like *Acacia latronum* and *Acacia arabica*. Come up. As far as possible such areas have been exculded from the regeneration areas, since artificial regeneration in these areas were not successful in the past.

SECTION 4—CLIMATE AND RAINFALL.

21. *Climate.*—The climate is mostly humid. Near the seacoast, the variation in temperature between the hotter and cooler months is small; but in the interior, the range is higher, giving rise to hotter and cooler months. While the Madras City has the typical coastal climate, the Nagalapuram village enjoys typical of the inland climate. The meteorological data recorded for 1951 at the Meenambakkam Observatory are given below :—

	Mean of		Highest recorded.	Lowest recorded.	Rainfal in inches.
	Daily maximum.	Daily minimum.			
Meenambakkam Observatory ..	91·4	75 6	108	64	30·65

22. April to June are the hottest months. If the summer showers and the south-west monsoon fail completely, the summer becomes quite hot. The coastal tracts are more humid than the inland areas. The tract is generally healthy, except for the incidence of diseases like leprosy and filariasis as in any other coastal tracts. In the costal tracts, the summer heat is mitigated by sea breeze in the afternoons, but the high realtive humidity is really oppressive at noons.

23 *Rainfall.*—During the early months of the year, there is seldom much rainfall except the ' mango showers ' or occasional summer rains. Generally some rainfall is had during the south-west monsoon from June to September. More than two-thirds of the annual rainfall is obtained during the north-east monsoon which breaks in October and continue till the end of December.

24. The rainfall data recorded in the various stations located within this division for the last 10 years is given in Appendix II. It will be seen that the average rainfall varies from 34·84 inches for Sriperumbudur to 42·53 inches for Saidapet and so the average rainfall for the division is about 38 69 inches.

25. The ' mango ' or ' summer ' showers in April–May are the real harbingers of growth activity in the plants.

SECTION 5—WATER-SUPPLY.

26. *Rivers and streams.*—Since the general drainage of the land is towards the coast, all the rivers and streams in the division drain into the Bay of Bengal. The main rivers flowing through the division are the Kortalaiyar, the Arani River, the Cooum and the Adayar.

27. The Kortalaiyar has its source from the surplus of the Kaveripak tank in North Arcot district and flows through the Trivellore and Ponneri taluks. Its waters are drawn into the Cholavaram tank and the Red Hills lake for the supply of drinking water to the Madras City. The river joins with the Ennore backwaters about 10 miles north of Madras. The Allikuli stream is an important tributary of this river and it has its catchment in the Allikuli reserved forest.

28. The Arani river has its source in Puttur taluk in Chittoor district. It enters the Chingleput district near Nagalapuram flows along the major part of the boundary between Ponneri and Trivellore taluks and enters the sea across the Pulicat swamps. The river is seasonal.

29. The Cooum and the Adayar though not large, are two well-known rivers of the district. The Cooum river flows across Trivellore, Sriperumbudur and Saidapet taluks and enters the sea at Madras. The Adayar river takes shape near Guduvancheri and flows in Sriperumbudur taluk and between that taluk and Saidapet taluk. It receives the surplus waters of the Chemberambakkam tank in Sriperumbudur taluk and finally flows across Saidapet taluk to enter the sea at Adyar in Madras district.

30. The Kalern stream has its catchment in the Kambakkam hills and flows into the Pulicat lake, through the Nellore district. The stream is seasonal: but one of its tributaries, the chinna kalva which forms the northern boundary of Kambakkam reserved forest in Perennial over part of its course.

31. *Tanks and lakes.*—The important tanks are Cholavaram, Red-hills and Chembarambakkam.

32. The Pulicat lake, which is a salt-water lake, lies partly in Chingleput and partly in Nellore districts.

33 *Water-supply.*—There are no important sources of water supply within the reserved forests and acute distress prevails during the summer months owing to the scarcity of

water for men and cattle. Adjoining and within the reserved forests, there are small tanks which have the nearby reserved forests as their catchment areas. These rainfed tanks contain water from July to December.

34. A list of sources of water supply to the more important forest stations in the division are given below :—

Name of Range (1)	*Station.* (2)	*Source of supply.* (3)	*Remarks.* (4)
Satyavedu	Satyavedu	Draw well	Perennial.
	Kambakkam hill ..	Spring	Dries in summer.
	Kambakkam village ..	Well in private land ..	Perennial.
	Thantipandal	Stream	Do.
	Yenad vettu	Draw well in private land.	Do.
Trivellore	Nagalapuram	Draw well	Do.
	Allikuli	Spring in private land ..	Do.

35. Artesian springs have been found in some villages in Ponneri taluk.

SECTION 6—DISTRIBUTION AND AREA.

36. *Distribution and area.*—The Saidapet Forest Division consists of Class I Reserved Forests, Class III Reserved Forests, and ex-zamin and ex-inam areas under the control of the department. The details of distribution of these forests is given below :—

Name of reserved forest. (1)	*Area in acres.* (2)	*G.O. number and date of section 16 notification.* (3)	*Remarks.* (4)
(i) CLASS I RESERVED FORESTS.			
A. Satyavedu Range.			
Kambakkam	15,077·00	No. 49, dated 6th February 1886.	..
Kambakkam Extension I	332·00	No. 378, dated 21st July 1894.	..
Kambakkam Extension II	378·00	No. 378, dated 21st July 1894.	..
Kadur	2,237·00	No. 333, dated 2nd November 1886 and No. 106, dated 30th March 1925.	..
Kadur Extension I	64·00	No. 60, dated 7th February 1894.	..
Ardur	2,531·00	No. 383, dated 2nd November 1886 and No. 107, dated 30th August 1925.	..
Ardur Extension I	283·00	No. 50, dated 31st January 1894.	..
Ardur Extension II	75·00	No 50, dated 31st January 1894.	..
Satyavedu	6,631·86	No. 383, dated 2nd November 1886 and C.C.P. No. 562, dated 15th December 1929.	..
Satyavedu Extension I	355.00	No. 611, dated 9th December 1893.	..
Satyavedu Extension II	369·00	No. 407, dated 9th August 1893.	..
Satyavedu Extension III	470·00	No. 611, dated 9th December 1893.	..
Total ..	28,802·86		
B. Trivellore Range.			
Ambakkam	5,317·27	No. 383, dated 2nd November 1886	—
Ambakkam Extension I	72·00	No. 406, dated 4th August 1894.	
Ambakkam Extension II	106·00	No. 233, dated 16th May 1894.	
Ambakkam Extension III	289·00	No. 406, dated 4th August 1894.	..
Ambakkam Extension IV	170·00	No. 104, dated 28th February 1894.	..
Nagalapuram	8,172·00	No. 153, dated 28th March 1887.	..
Nagalapuram Extension I	945·00	No. 380, dated 19th July 1894.	—
Nagalapuram Extension II	131.00	Do.	
Nagalapuram Extension III	110·00	Do.	
Nagalapuram Extension IV	338,00	Do.	
Allikuli	5,904·00	No. 153, dated 28th March 1887 & No. 285, dated 19th September 1928.	..
Allikuli Extension I	121.00	No. 406, dated 4th August 1894.	..
Allikuli Extension II	36·00	No. 404, dated 3rd August 1894.	..
Allikuli Extension III	90·00	No. 406, dated 4th August 1894.	..
Allikuli Extension IV	66 00	Do.	
Allikuli Extension V	80 00	Do.	
Allikuli Extension VI	101.00	No. 433, dated 30th August 1894.	—
Allikuli Extension VI	152.30	No. 406, dated 4th August 1894.	—
Total ..	22,209.27		

(ii) CLASS III RESERVED FORESTS.

A. Satyavedu Range.

Name of reserved forests	*Area in acres.*	*G.O. number and date of section 16 notification.*	*Remarks.*
(1)	(2)	(3)	(4)
1 Ugumudi Reserved Forest and Extension.	940.00	No. 1784, Development, dated 2nd April 1949.	..
2 Irugulam Reserved Forest and Extension.	824.00	Do.	..
3 Nemalur Reserved Forest and Extension.	639.14	Do.	..
Total ..	2,403.14		

B. Trivellore Range.

1 Alamadi Reserved Forest	1,028.00	No. 1784, Development, dated 2nd April 1949.	Area handed over to the Animal Husbandry Department.
2 Palavakkam Reserved Forest and extension.	3,196.00	Do.	
3 Manali Reserved Forest	1,354.00	Do.	
4 Senjiagaram Reserved Forest	325.00	Do.	
5 Erumaivettipalayam Reserved Forest ..	532.00	Do.	
6 Mailapur Reserved Forest and Extension.	1,124.25	Do.	
7 Nayapakkam Reserved Forest and Extension.	1,168.00	No. 305, Development, dated 25th January 1945.	
8 Vembedu Reserved Forest	839.00	No. 1784, Development, dated 2nd April 1949.	
9 Pullarambakkam Reserved Forest and Extension.	954.00	Do.	
10 Mittanemali	236.00	Area occupied by the Millitary authorities.	
11 Kovilpadugai	772.00		
12 Thirumalaivayal	534.00		
13 Thandarai Reserved Forest	828.00		
Total ..	13,372.25		

C. Tambaram Range.

1 Mannur Reserved Forests	553·00	No. 2292, Development, dated 13th June 1945.	..
2 Pudupper Reserved Forests	359·00	No. 1784, Development, dated 2nd April 1949.	..
3 Nallur Reserved Forests	903·00	No. 884, Development, dated 24th February 1948.	..
4 Erumaiyur Reserved Forests	170·00	Do.	..
5 Pulikoradu Reserved Forests	185·00	No. 1784. Development, dated 2nd April 1949.	..
6 Tambaram Reserved Forests	228.61	No. 1784, Development, dated 2nd April 1949.	..
7 Nanmangalam Reserved Forests and Extension.	676.00	No. 2292, Development, dated 13th June 1945.	..
8 Maganiyam Reserved Forests ..	955·00	No. 884, Development, dated 24th February 1948.	..
9 Maduraipakkam Reserved Forests. ..	451·00	No. 2292, Development, dated 13th June 1945.	..
10 Perumbakkam Reserved Forests ..	113·00	No. 1784, Development, dated 2nd April 1949.	..
11 Vadekkupattu and Extension ..	710·00	No. 2292, Development, dated 13th June 1945.	..
12 Vattambakkam and Extension ..	814·00	Do.	..
13 Gudalur and Extension	2,277·00	No. 2292, Development, dated 13th June 1945.	..
14 Vandalur and Extension	2,896·00	Do.	..
15 Kumili and Extension	1,205·68	No. 884, Development, dated 24th February 1948.	..
16 Unamanjeri	759·00	No. 4014, Development, dated 24th October 1946.	..
Total ..	13,255·29		

Name of reserved forest. (1)	Area in acres. (2)	G.O. number and date of section 16 notification. (3)	Remarks. (4)
(ii) CLASS III RESERVED FORESTS—*cont.*			
D. Kelambakkam Range.			
1 Sonalur and extension	1,365·00	(Government Memo. No. 75089-C/45-2, Development, dated 28th December 1945).	
2. Mambakkam and extension	1,278·00	Do.	..
3 Kulathur and extension	1,866·00	Do.	..
4 Kalvoy	72·00	No. 884, Development, dated 24th February 1948.	..
5 Kayar and extension	1,109·00	No. 2242, Development, dated 13th June 1945.	..
6 Taiyur	1,515·00	Government Memo. No. 75089-C/45-2 Development, dated 28th December 1945.	..
7 Sirukunram and extension	1,490·00	No. 2292, Development, dated 13th June 1945.	..
8 Anjur and extension	1,627·00	No. 884, Development, dated 24th February 1948.	..
9 Vallam and extension	1,726·00	Do.	
10 Senkunram and extension	1,295·00	No. 2292, Development, dated 13th June 1945.	..
11 Tirutheri and extension	851·00	Do.	..
Total ..	14,194·00		
(iii) ZAMIN AND INAM AREAS.			
A. Satyavedu Range.			
1 Thondampattu	1,559·54	G.O. Ms. No. 1416, Revenue, dated 2nd June 1951.	..
2 Bhupatheswarapuram	3,453·88	Do.	..
3 Saddikuttimadigu	1,614·26	Do.	..
4 Vanallore	4,221·03	Do.	..
5 Vittayalayam	75·00	Do.	..
6 Vaviligunta	20·00	Do.	..
7 Appazapalayam	100·00	Do.	..
8 Chillamathur	10,946·28	Do.	..
Total ..	22,989·99		..
B. Trivellore Range.			
1 Pulikunram	14,276·03	G.O. Ms. No. 1416, Revenue, dated 2nd June 1951.	..
2 Nandanam	8,657·63	Do.	..
3 Rajagunta	7,421·67	Do.	..
4 Sembedu	804·00	Do.	Inam area.
5 Vengal	400·00	Do.	Do.
6 Malavalur	425·00	Do.	Do.
Total ..	31,984·33		
C. Tambaram Range.			
1 Koppalur	187·66	G.O. Ms. No. 1416, Revenue, dated 2nd June 1951.	Do.
D. Kelambakkam Range.			
1 Ammanambakkam	125·75	G.O. Ms. No. 1416, Revenue, dated 2nd June 1951.	Inam area.
2 Ottivakkam	315·48	Do.	Do.
Total ..	441·23		

37. The details of the various types of forests in each range is summarised below :—

Name of Range. (1)	*Area of each class of forest in acres.* I class. (2)	III class. (3)	Ex-zamin and ex-inam areas. (4)	Total. (5)
1 Satyavedu	28,802·86	2,403·14	22,989·99	54,195·99
2 Trivellore	22,209·27	13,372·25	31,984·33	67,565·85
3 Tambaram	Nil	13,255·29	187·66	13,442·95
4 Kelambakkam	Nil	14,194·00	441·23	14,635·23
Total ..	51,012·13	43,224·68	55,603·21	1,49,840·02

Grand total .. .. 1,49,840.02 acres.

NOTE.—The above areas of ex-zamin and inam lands given in paragraphs 36 and 37 are only approximate, as they have not yet been notified as reserved forests.

38. *Division into beats.*—The details of the constitution of beats in the four ranges are furnished in Appendix III.

SECTION 7—STATE BOUNDARIES.

39. *State of boundaries.*—The reserved forests have been permanently demarcated by means of granite stone slab and cairns and cleared lines 6 feet to 12 feet in width between the cairns. In Satyavedu Range, some of the reserve lines are demarcated by trenches with a line of aloes along it and rough stone cairns at important points. In the class I reserved forests, the boundary lines are generally maintained in a satisfactory condition.

40. In Class III Reserved Forests, which were under the Panchayat management from 1923 to 1949, the boundaries were not satisfactorily maintained. Now most of the cairns are not having the correct serial numbers noted in the maps. Some of the cairns are missing or broken and the baundary lines are also overgrown at places. All these defects need immediate rectification and adequate provision for this work has been made in Chapter IX Part II.

SECTION 8—LEGAL POSITION.

41. *Legal position.*—All the class I and class II reserved forests are the absolute property of the State, subject to certain rights and concessions, that have been notified under section 16 of the Madras Forest Act V of 1882. The ex-zamin and ex-inam lands though under the management of the department have not yet been notified as reserved forests under section 16 of the Madras Forest Act. The notification under section 4 of the Madras Forest Act is under preparation. The unreserved lands under the management of the department belong to the Revenue Department.

SECTION 9—RIGHTS AND CONCESSIONS.

42. *Rights and concessions.*—The various rights and concessions with regard to each reserved forest like rights to worship, rights of way, rights to watering places minor forest produce trees and rights to burning grounds, if any, admitted at the time of settlement have been recorded in section 16 notification of the Madras Forest Act V of 1882 relating to that reserved forest. No other rights and concessions are admitted in the reserved forests.

The ex-zamin ryots are permitted to enjoy the customary right in vogue at the time of taking over of these forests. These vary from forest to forest and in general the continuance of these vague rights will be detrimental to the interest of the forests. These could be settled at time of Forest settlement and hence the existing rights have not been described in detail.

CHAPTER II—THE FOREST.

SECTION 1—COMPOSITION AND CONDITION OF THE CROP.

43. *General.*—This forest division includes class I and Class III Reserved Forests and other ex-zamin, inam and mitta forests. Since the class I reserved forests were under scientific management from the beginning, they contain some of the best patches of the forests in this State : (e.g.) the Kambakkam plateau. The Class III Reserved forests were under the Panchayat management for more than two decades from 1923. As the management under the Panchayats was far from satisfactory, the condition of the forests totally deteriorated and resulted in various retrogressional types. Invariably, only scrub vegetation exists with a little variation in growth due to edaphic factors. Worse is the condition of the ex-zamin and inam forests, as the private owner was little interested in the protection and proper management of the forests : but wanted to realize maximum revenue out of his forests especially on the eve of handing over.

44. *Forest types.*—The various locality factors that decide the forest types in this division are : rainfall and moisture, soil, elevation, proximity to sea and biotic influence.

45. The description of the various forest types that occur in this division is done on the classification of forests done by H. G. Champion in his book ' A preliminary survey of the forest types of India and Burma '. The important forest types met with, in the orders of distribution, are—

(i) Dry tropical forests—

Tropical thorn forests—

Group 5-a—Southern tropical thorn forest C-1, Southern cutch thorn forest.

(ii) Dry tropical forests—

Carnatic evergreen forest.

Group 6. tropical dry evergreen forest.

(iii) Dry tropical forests—

Tropical dry deciduous forests.

Group 4-a—Southern tropical dry deciduous forests.

Group C-2—South Indian dry mixed deciduous.

(iv) Dry tropical forests—

Subsidiary edaphic types of dry tropical forests.

Shorea tumbaggaia.

(v) Dry tropical forests—

Subsidiary edaphic types of dry tropical forests.

E-8—Babul.

A detailed description of the above types of forests is given in the following paragraph—

46. *Dry tropical forests—Tropical thorn forests—Group 5-a—Southern tropical thorn forest—C-1 Southern Cutch thorn forest.*—Champion describes this forest as :—' An open low forest in which thorny usually hardwood species predominate, *Acacia* species being particularly characteristic. The trees usually have short boles and low branching crowns which rarely meet. The usual height is 20 to 30 feet. There is usually a mixture of species (though relatively few in number), consociations being the exception rather than the rule. There is an ill-defined lower storey of smaller trees and large shrubs, mostly spiny and often with other xerophytic characters, extending down to low shrub growth of similar character. There is usually a thin grass growth which may appear fairly complete during the short moist season, but more or less the soil is bare. Climbers are few, also frequently showing xerophytic adaptations. The genus *Acacia* with a number of species and several other allied genera is characteristic above all others. Fleshy *Euphorbias* are generally present and form a conspicuous constituent of the vegetation and *capparis* is also a typical genus. *Oputia* has become naturalised over wide tracts of this type, but is not indigenous '.

47. The existing overwood generally consists of *Albizzia amara*, *Acacia sundra*, *Azadirachta indica*, *Acacia leucophlœa*, *Chloroxylon swietenia*, *Bauhinia racemosa*, *Anogeissus latifolia*, *Cassia fistula* and others. The ill-defined lower storey consists of sapling and pole stages of the overwood and species like *Randia dumetorum*, *Carissa carandus*, *Canthium didymum*, *Dichrostachys cinerea*, *Fluggea leucopyras*, *Cleistanthus collinus*, *Zizyphus xylopyrus*, and others. *Euphorbia* species is very common. The grasses met with are *Aristida* spp. *Heteropogan* spp. and others forming a thin cover. The commonly seen climbers of these forests are *Petrolobium indicum* and *Acacia intsia*. Opuntia is now practically extinct.

48. This is the most common forest type and occurs over large areas. This type can be seen in the Reserved Forests which are situated close to the villages as in Vandalur Reserved Forest and Gudalur Reserved Forest. The density of stocking and the variety of species that occur vary with the intensity of the mal-treatment meted out to these forests. The density seldom exceeds 0·5.

49. " Schimper wrote that thorn woodland is often the effect of excessive cutting and browsing and so often not a climatic formation "—(Champion-ibid).

50. *Dry tropical forests—Carantic evergreen forest—Group 6—Tropical dry evergreen forest.*—In describing this type, champion writes : ' A low forest, 30 to 40 feet high, but forming a complete canopy consisting mostly of small coriaceous leaved evergreen trees with short boles and spreading crowns. There is no marked differentiation of canopy layers between the shrub by underwood which includes many spiny species and the top canopy. A few species form the bulk of the crop which is however decidedly a mixed type, pure consociations being exceptional. Climbers are numerous. Bamboos are rare or absent. Grass is present, but not conspicuous. Most of the forests have been much influenced by felling, lopping, and browsing and have become irregular with open patches, and the thorny and impalatable species have largely displaced the climax vegetation ".

51. " The most conspicuous genus is *Mimusops* (*Sapotaceae*) *Memecylon* (*Melastomaceae*) is also typical and common. *Diospyros* and *Eugenias* are usually present ".

52. As these forests are of scrub type, no differentiation of canopy layers generally exists, except in well-protected forests in the interior and especially along the stream banks. The evergreen species commonly met with are *Memecylon umbellatum*, *Memecylon edule*,

Maba buxifolia, Hemicyclea sepiaria, Mimusops hexandra, Eugenia jambolana, Atalantia monophylla, and others. The other tree species that occur in a scattered manner among those evergreen species are :—

Chloroxylon, swietenia, Canthium didymum, Strychnos nuxvomica, Sapindus emarginatus, Bucahania latifolia, Zizyphus xylopyros, Acacia leucophlœa and others. The shrubs that are seen in this scrub forest are *Randia dumetorum, Carissa carandus, Flacourtia sepiaria, Crewia asiatica, Gmelina ariatica, Ixora parviflora, Webra corymbosa, Dodonea viscota, Scutia indica, Todalia aculeata*, and others. Grasses like *Cymbopogan* species and *Aristida* spp. are also seen in a scattered manner. *Asparagus* spp., *Combretum* spp., *Derris scandens, Acacia intsia* and others are the most common climbers of these forests.

53. Though the low evergreen scrub type of forest is quite common in this division, the true evergreen forest will well defined canopy levels occur only in sheltered localities in the interior in Nagalapuram, Kambakkam and Satyavedu Reserved Forests. Here *Maba buxifolia, Hemicyclea sepiara* and *Eugenia jambolana* can be seen to attain good sizes. Due to intense biotic interference, the evergreen species have yielded place to deciduous and xerophytic species in several localities; (e.g.) Satyavedu Reserved Forest. *Ptrocarpus marsupium* trees occur abundantly among Memecyclon bushes in Kadur and Ardur Reserved Forests. Probably, this is a fine and a welcome example of the incursion of the deciduous species into the evergreen forests due to biotic influence.

54. *Dry tropical forest –Tropical dry deciduous forest—Group 4-a—Southern tropical dry deciduous forests—C-2—South Indian dry mixed deciduous.*—While describing this type, Champion writes :—

" The upper canopy in the climax type is closed though usually rather uneven and not very dense one. It is formed by a mixture of trees practically all of which are deciduous during the dry season, usually for several months, though some for a short period only. Most of the species also occur in the moist deciduous forest and reach finer development there, the height of the dry deciduous forest being typically 50—75 feet. The number of species is much less than in the foregoing types and although a few tend to predominate over any selected area, the majority are not particularly gregarious so that more or less pure associations can usually be traced to soil peculiarities or human inteference. At the same time, the dry deciduous forests provide the clearest examples in tropical India outside the sal farest of natural single species crops. The lower canopy is likewise almost entirely deciduous as although evergreens or sub-evergreens are present they are inconspicuous and mainly confined to the moistered and more sheltered spots. An undergrowth of shrubs is usually present, but enough light gets in to permit more or less grass growth and with burning this tends to become more strongly developed resulting in savannah or park like forms. Bamboos are often present but are not luxuriant. Canes and palms are absent. Climbers are comparatively few but include large woody species which may be locally conspicuous. Epichytes and ferns are quite inconspicuous ".

55. " Shallow soiled, well drained hill sides or undulating ground is typical, and it is often difficult to decide whether the occurrence of the type is due to site or climate. The forests are mostly burnt annually ".

56. " Thorny plants occur and tend to increase in proportion with the heavy grazing, etc., to which most of the area is subjected."

57. " The overwood generally consists of *Anogeissus latifolia, Albizzia amara, Chloroxylon swietenia, Acacia leucophlœa, Hardwickia binata, Dolichandrone crispa, Dolichandrone falcata, Strychnos nuxvomica, Mimusops hexandra* and others. In somewhat sheltered and inaccessible localities, better timber species like *Shorea tumbaggaia, Eugenia alternifolia, Dillenia pentagyna, Terminalia pallida, Terminalia tomentosa, Terminalia paniculata, Pterocarpus marsupium, Pterocarpus santalinus, Carallia integerrina, Buchanania litifolia, Memecylon umbellatum, Canthium didymum* and others occur in a scattered manner. As the trees generally do not attain a height more than 30 to 40 feet, the immature growth of these species themselves form the underwood. The shrub growth consists of thorny species as *Acacia* spp., *Zizyphus* spp., *Randia* spp. and others. Grass is seen to come up in thickests and with the thorny shrub growth forms a more or less impenetrate growth at places. *Bambusa arundinacea* and *Dendrocalamus Strictus* occur very sparsely in this type, the former being confined to the moist situations along the streams and the latter to the drier hill tops."

58. This type is commonly seen in the Kambakkam and Nagalapuram hills and the Reserved forests that lie close to it like Allikuli Reserved Forest.

59. Sandal was introduced in these forests in 1917 in Kambakkam plateau along road margins and paths where it is flourishing and spreading naturally. Several propagation centres were raised since 1929 with varying degrees of success.

60. *Dry tropical forests—Subsidiary edaphic types of dry tropical forests—Shorea tumbaggaia.*—This type has not been recognized separately by H. G. Champion. Just as the E-3, *Hardwickia* or E-4, *Boswellia* or E-5 *Butea* forest, this *Shorea tumbaggaia* is recognizable as a separate type in the forests of this division.

61. The common associates in the overwood are *Eugenia alternifolia, Dillenia pentagyna, Terminalia pallida, Terminalia tomentosa, Terminalia paniculata, Pterocarpus marsupium, Pterocarpus santalinus, Buchanania latifolia, Canthium didymum* and others. The tree crop is generally stunted and do not reach a height more than 30 to 40 feet and a girth more than 3 feet under favourable conditions. *Shorea tumbuggaia* occurs in pathes in a gregarious manner in protected situations. No underwood, as such, is recognizable except the immature growth of the species forming the overwood. Thorny shrubs like *Acacia* spp., *Zizyphus* spp., *Randia* spp. and others, are seen to come up with dense growth of grass.

62. This type of forest is formed in the Kambakkam plateau and in the hilly regions of Nagalapuram Reserved Forest.

63. Even though the forests have the general appearance of the dry tropical forest type, the general preponderance of the species at particular localities in patches, appear to call for it being classified as a separate sub-type. As the species occur in gregarious patches over definite localities in protected situations, probably this is an edaphic type and not a climatic one. This conclusion appears to be reinforced by the fact that the trees above 3 feet girth are rarely sound and probably, this is brought about by the local inhospitable factors as shallow soil, etc.

64. *Dry tropical forests—Subsidiary edaphic types of dry tropical forests—E-8—Babul.*—According to Champion " this sub-type is associated with black cotton soil. . . . The general appearance of the forests is entirely dominated by one species *Acacia arabica* which is markedly gregarious in habit and forms a denser cover than usual in thorn forests (biotic factors have also undoubtedly been in play). The few associated species occur mainly where the *Acacia* canopy is broken and there is usually very little undergrowth; (grazing is heavy). There is a rather thin soil cover of grass."

65. In the overwood, the other species that occur along with *Acacia arabica*, are: *Dichrostachys cinerea, Acacia sundra, Acacia leucophloea, Phoenic sylvestris, Ferronia elephantum, Dolichondrone crispa*, and others. *Butea monosperma* and *Azadirachta indica* are seen coming up from inside the bushes. As generally only one canopy level is noticed, underwood is absent. The herbaceous growth consists of *Cassia tora, Cassia auriculata, Carissa carandus, Capparis granidis, Dodonea viscosa* and others. *Andropogon* spp. and other grasses are commonly seen.

66. This sub-type occurs in patches in several of the Reserved forests at places, where the soil is clayey and black cotton type with poor drainage (e.g.), Mambakkam Reserved Forest, Kayar Reserved Forest, Taiyur Reserved Forest. Due to adverse biotic influence as grazing, these forests change considerably. At places where the black cotton soil tends to become ' Kallar ' soil, almost a pure crop of *Acacia latronum* and *Gymnosporia* spp. come up (e.g.), Kulathur Reserved Forest.

SECTION 2—INJURIES TO WHICH THE CROP IS LIABLE.

67. *Man.*—The existence of numerous villages near the Reserve Forests and the unfettered rights which the people enjoyed during the panchayat management are the main reasons for the illicit removals of mainly firewood, small timber and manure leaves from the Reserved forests. The economic condition and the illiteracy of the people do not make them realize the importance of the valuable forests situated in the close vicinity of the villages. The unauthorized customary rights which the villagers enjoyed in those Reserved forests before they were taken over by the Department, have created a class of people, who solely depend on the removal and selling of forest produce and believe in perpetuating their vandalism. It looks as though it is difficult for such people to slough off their old habits and to turn a new leaf i nspite of inflicting severe penalties under the Madras Forest Act. In the circumstances the necessity for reinforcing the existing protection staff and to increasing the number of patrols in the Reserved forests appears to be *sine qua non* for efficient protection.

68. The class I Reserved Forests in Satyavedu and Trivellore Ranges also appear to be equally vulnerable to smuggling and thefts. While it is difficult to single out the particularly vulnerable localities in any Reserved forest, the necessity to lay proper emphasis on protection needs no under-estimation.

69. *Animals.*—The depredations caused to the Reserved forests by overgrazing and goat browzing need no elaboration. The present degraded conditions of the ex-panchayat Reserved forests themselves speak volumes about the perpetuation of these evil practices. These scrub jungles contain very little fodder grass worthy of mention. The hardening of the ground and the beginnings of incipient erosion can easily be seen in these forests. The cattle mainly feed on shrubs and other plants of fodder value only. The scarcity of common grazing ground and the absence of adequate forest trees in the villages induce the villagers to graze their goats in a clandestine manner in the Reserved forests. Thus, the real menace to the scrub jungles is the ' goat ' rather than the smuggler.

70. In the class I Reserved forests, the incidence of the grazing is very little as the Reserved forests are situated in the interior and are of undulating country. Here also, the marginal forests close to the Reserved forest boundary lines are subjected to the same depredations as the Class III Reserves.

71. *Forest offences.*—The details of the various types of forest offences that occurred and the revenue realized from 1947–48 to 1955–56 for the former Chingleput Forest Division are given in a statement in Appendix IV Illicit felling and removal of forest produce and illicit grazing are the major types of forest offences that occur in this division.

72. *Fires.*—Fires are rare in this division and the damage caused by them are insignificant due to the presence of evergreen shrub growth like *Mesmecylin edule, Maba buxifolia* and others in these forests. The statement given in Appendix V gives the extent of the Reserved forests that were burnt from 1949 to 1956.

73. *Drought.*—In these low rainfall areas, drought affects considerably the proper growth of the plants. Apart from the dessiceation of the soil and the retardation in the growth of the plants, it causes wholesale death of plantations in extreme cases of prolonged drought.

74. *Wind.*—The hot desiccating winds from the inland during the hot weather before the monsoon sets in cause death, at times, to the younger unestablished seedlings in the cashew plantations.

75. *Noxious plants.*—*Loranthus longiflones* and *viscum onientalis* and *viscus capitellatum* are seen over nuxvomica and soapnut trees which yield valuable minor forest produce. These epiphytes eventually strangle the portion of the tree on which they had settled and kill it.

76. In newly felled coupes and in plantations, climbers and creepers cause damage to the younger plants. The creeper *Sarcostemma brevistigma* is a real danger to tree growth. In parts of Satyavedu Range, in moist situations and on good soil, *Stenosyphonium russelinum*, which resembles *Stobilanthes* occurs in dense masses to the detriment *of Natural* Regeneration in the forests. The other climbers that cause damage to the young plants are : *Acacia intsia, Peterolobium indicum* and others.

77. *Pests and diseases.*—The details of the various insects pests and diseases that occur in the cashew plantations are given in Appendix VI.

SECTION 3—FAUNA.

78. *Wild life.*—Only the hill forests of Satyavedu and Trivellore Ranges contain some wild life like bear, panther, tiger, spotted deer, sambhur, wild boar and others. The inland chains forests support very little wild life worth the name. Here wild boar and porcupine are seen rarely in the relatively inaccessible portions of the forests. Hares are commonly seen in these forests.

79. The avifauna in the forests of this division are equally poor in variety and number. The commonly seen birds are : the jungle-fowls, the quails, the partridges, the ships, the sandgrouse, the pigeons and the peafowl. The absence of large sheets of water within the Reserved Forests is also one of the reasons for the absence of birds. The numerous irrigation tanks and lakes lying outside the Reserved Forests provide suitable refuges for water birds, like-water snips, cormorants, darters, egrets, storks, herons, spoon-bills ibises, pelicans and king-fishers. The migratory birds which are reported to have come from other countries and which visit the Vedanthangal bird sanctuary near Maduranthakam are also seen in these tracts during their passage at times.

80. *Hill tribes.*—There are no hill tribe settlements within the limits of the Reserved Forests. But, the ' Yenadis ' who live near about the Reserved Forests surrounding Satyavedu and Nagalapuram Hills may be often seen in these forests.

CHAPTER III—UTILIZATION OF THE PRODUCE.

SECTION 1—AGRICULTURAL CUSTOMS AND WANTS OF THE PEOPLE.

81. *Agricultural customs.*—Agriculture is the main occupation of the local population. Cattle breeding, sheep-farming and goat rearing are the subsidiary occupations of these cultivators to supplement their income. Wet cultivation is mostly done over areas served by canal and the ayacuts of the rain-fed tanks scattered all over the division. Paddy is the most important wet crop. Where sufficient water is available, two crops are raised. The bulk of the area is under dry crops only. The important dry crops cultivated are: varagu (*Paspalum scrobiculatum*), Cholam (*Sorghum vulgare*), Chama (*Panicum frumentaceum*), greengram and redgram.

82. The time-honoured wooden plough with a pair of bullocks still holds its way. Cultivators are realising the value of chemical and organic manures but the lack of resources is the main handicap in making greater use of them.

83. *Industry.*—There are no important forest industries in the division except the saw mills, the furniture marts, the match factory and the pencil factory in and around Madras. These industries mainly depend on raw materials obtained from other parts of India and abroad. Large quantities of forest products are consumed by numerous industries like the textile mills, leather goods manufacture, etc. An Industrial Estate at Guindy has been set up recently to help the small-scale industries.

84. Salt manufacture is an important industry along the coastal taluks and the important centres are Ennore and Covelong. Casuarina planting has been a remunerative and extensive private industry for supplying fuel to urban centres. The handloom industry also exists in these areas. Thus, except for the important and varied industrial units existing near about Madras, there are not many industries in the interior.

85. *Requirements of the local population.*—The principal requirements of the local population on these forests are (*a*) grazing, (*b*) small timber for agricultural implements and house construction, (*c*) thorn and firewood, (*d*) manure leaves and (*e*) bamboos.

86. *Grazing.*—Next to agriculture, grazing is an important industry more to the people in the Satyavedu and Trivellore Ranges than to those in the other two Southern Ranges. This is largely due to the facilities for grazing such as the existence of large continuous areas of Reserved Forests and the existence of important cattle breeding centres in the neighbouring Nellore district. Intensive cultivation operations in the Southern Ranges have prevented the development of cattle breeding to such a large extent.

87. The cattle generally resort to these forests for grazing; but rarely, are penning facilities even under the 'Kancha' system in Satyavedu and Trivellore Ranges, availed by people. As the forests of this division are mainly scrub type, grazing is an important activity in these forests and brings in handsome revenue.

88. *Small timber.*—The demand for small timber for agricultural implements and for house construction is fairly large and widespread, as more than 70 per cent of the total population of our country depend on agriculture. This demand is met only to a small extent by the timber produced in these forests by the working of fuel coupes. The trees on porambokes, patta lands and imports from outside satisfy the major demand. The tree species popularly used for these purposes are: *Hardwickia binata, Anogeissus latifolia, Chloroxylon swietenia, Acacia arabica, Acacia leucophloea, Azadirachta indica* and others.

89. *Thorn and firewood.*—Thorns are in demand for fencing garden lands and cultivated lands especially adjoining villages. This demand is widespread throughout and is met partly by the forests and partly from the unreserves and other sources.

90. The firewood demand on the forests from the neighbouring villages and towns is fairly heavy. The fuel coupes worked in the Reserved Forests supply only a medicum of the demand. The trees in the patta, poromboke and other areas are exploited to meet this supply. Pilfering from the forests also meets the demand to a small extent in the villages and towns close to the forests. Casuarina plantations cultivated in the patta lands in and outside this division meet the firewood demand to a very large extent.

91. *Manure leaves.*—Green manure leaves are used in localities where paddy cultivation is done under irrigation. Where wet cultivation is done in the areas close to Reserved Forests the required manure leaves are generally removed from the Reserved Forests. The removal of manure leaves from the Reserved Forests was governed by the orders issued from time to time. The species used for manure leaves are: *Dodonea viscosa, Wrightia* spp., *Morinda tinctoria, Webera corymbosa, Odhatoda vesica,* etc.

92. In the areas situated far away from the Reserved Forests, the demand for manure leaves is met by the trees and shrubs that are grown in the pattas, village porombokes and other areas. Cultivation of *Glyricidia* spp. along bunds of fields for manure leaf is very popular.

93. *Bamboos.*—There is great demand for bamboos, the poor man's timber. The meagre quantity available from the forests cannot even meet the demands of the neighbouring villagers. Large quantities are imported from outside to meet the local demand.

SECTION II—MARKETS AND MARKETABLE PRODUCTS.

94. *General.*—The City of Madras is the main market in addition to the local ones of the district for the firewood of this division. Cashewnut is generally exported to foreign countries like the United States of America and Russia. The position with regard to minor forest produce is the same as that of firewood. Some of the important minor forest products are tamarind, nuxvomica seeds, soapnut, tangedu bark and others. Thangedu (*Cassia auriculata*) which occurs profusely in Ponneri taluk, is leased out as a separate unit for collection.

95. *Requirements.*—The quantities of the various forest products collected from this division are not adequate to meet even a fraction of the requirements of the Madras City. Typical is the case of firewood. The annual outturn of firewood from this division is expected to be, 2,900 tons. The requirements of the Madras City alone comes to be 2,02,000 tons per annum, according to a recent survey. Thus, there will be a ready and competitive demand for all the forest products from this division.

SECTION III—LINES OF EXPORT.

96. *Railway.*—The important railway routes of this division are—

(i) Madras-Egmore to Chingleput along the main line in metre gauge.

(ii) Madras Central to Kadambattur along the broad gauge towards west.

(iii) Madras Central to Elayur along the broad gauge towards north.

But these facilities are seldom availed of due to proximity of the forests by road to the consuming centres and the difficulty in getting wagons.

97. *Roads.*—The present net-work of the road system existing in this division is well spread and adequate to meet the needs of the people. In addition to the portions of the National Highways lying within the limits of this division, there are a number of major and minor District Board Roads and village roads. The details of the National Highways are given below :—

National Highways.—(i) Grand Southern Trunk Road NH 7 from Madras to Chingleput, miles 0 to 36.

(ii) Madras-Conjeevaram Road—From Madras to Salvalimangalam, miles 0 to 36.

(iii) Madras to Tada Road—From Madras to beyond Gummidipundi, miles 0 to 33.

98. *Water transport.*—The Buckingham canal is an important and cheap channel of transport.

99. *Buckingham Canal.*—It is a salt water navigation canal with a total length of 262 miles, of which 196 miles lie to the north of Madras and the balance 66 miles to the south of Madras along the Coromandel Coast. The construction of the canal was begun in 1806 and finally completed in 1891. The canal is locked from tidal flow for 216 miles and the remaining 46 miles is tidal when the sand bars of the sea open. The canal stretches from the backwaters of Marakanam to the deltaic canal waters of the Krishna River in Andhra Pradesh. This canal provides cheap and easy communication between Madras and important towns like Kakinada, Vijayavada, Masulipatnam, Ongole, Nellore and several others of Andhra Pradesh. The canal north of Madras is of more importance than that of south. While the former is used by boats of 3 feet draught with a maximum capacity of 40 tons, the latter is used by boats of 2 feet draught with a maximum capacity of 10 tons only. The portion north of Madras is more dependable and frequently used than that portion in the south and in the past, it carried six times the trade of the south. The canal has replaced by the precarious coastal trade. After the separation of Andhra Pradesh, this trade diminished to some extent.

100. The canal runs over most of its length at a distance less than half a mile from the sea and is subjected to severe cyclones. The capital cost of the canal is Rs. 86,14,000. Madras basin is the most important for the northern section of the canal and Adyar, for the southern section. There are now proposals under examination for improving the canal.

SECTION IV—METHODS OF EXPLOITATION AND THEIR COST.

101. *Firewood.*—The fuel coupes are sold annually to the purchasers who exploit them by engaging the necessary mazdoors. No departmental exploitation is generally undertaken. The details of the cost of exploitation are given below for two selected Fuel Coupe Series :—

Item of work.	*Cost per ton.* Moppurpalli Fuel Series Coupe IX.	*Cost per ton.* Kadur Fuel Series Coupe IX.	*Remarks.*
(1)	(2)	(3)	(4)
	RS. A. P.	RS. A. P.	
1. Felling, billeting and stacking	8 0 0	6 0 0	
2. Transport charges to market by lorry	8 0 0	6 0 0	
3. Loading and unloading charges	1 0 0	1 0 0	
4. Overhead charges	4 0 0	3 0 0	
5. Seigniorage rate	40 0 0	35 0 0	
6. Contractor's profit	8 5 0	7 5 0	

102. The firewood is generally transported by lorry straight to Madras. It is sometimes transported by lorry to Tada and then to Madras by boat.

103. *Charcoal.*—The manufacture of charcoal in the reserved forests is not permitted now though it was done up to 1953.

104 *Cashewnut.*—The right to collect cashewnut from the cashew plantations will be leased out annually to the contractors who maintain the necessary staff and labour for their exploitation. Based on the current market rates, the details of cost of collection are given below :—

Name of item.	*Cost of collection per ton.*
(1)	(2)
	RS.
1. Collection of fruits from trees	16
2. Transport to forest depot over about 4 miles	3
3. Separation of fruits from cashew nuts and drying them	12
4. Transport to market over a distance of 20 miles ..	16
5. Overhead charges	3
Total ..	50

The seignorage value for the produce and the contractors' profit will have to be added to the above figure to arrive at the market rate.

105. *Bamboos.*—These occur sparsely in this division and so were not sold separately.

106. *Minor Forest Produce.*—Except the tangedu bark lease of Ponneri taluk, which is sold as a separate unit, the other items are sold with each Range as a separate unit. The cost of collection of some of the important minor forest produce items are—

	RS. NP.
(i) One bag of 3 maunds (216 lb.) of unshelled tamarind	0 75
(ii) One maund (82 lb.) of tangedu bark	10 00

SECTION V—PAST AND CURRENT PRICES.

107. *Fuel coupes.*—The price fetched by the sale of fuel coupes in all the Felling Series is furnished in Appendix VII. Since keen demand for firewood existed throughout this period, high prices were realized. The fluctuation in the prices is mainly due to variation in yield and the competition among bidders at the time of sale.

108. *Casurina plantations.*—The revenue realised by the sale of casuarina plantations in the past are furnished in Appendix VIII. The ruling high prices for firewood resulted in the realisation of handsome revenue. The fluctuation in the prices fetched is more due to the variation in the stocking of the plantations that the competition in bidding at the sales.

109. *Minor Forest Produce.*—The details of revenue realised by the sale of the various items of minor forest produce are given in Appendix IX. The variation in the prices fetched is mainly due to the quantity and quality of the crop obtained each year and the competiton at the time of sale.

110. *Miscellaneous items—(a) Manure leaves.*—The details of revenue realised by the sale of manure leaves is furnished in Appendix X. The removals from the forests appear to be sporadic.

CHAPTER IV—ESTABLISHMENT AND LABOUR.

SECTION 1—ESTABLISHMENT.

111. *Establishment.*—The details of the existing executive and material establishedment are furnished below :—

Description of staff.	*Designation of staff.*	*Rank.*	*Strength.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)
Control	District Forest Officer ..	Assistant Conservator of Forests.	1	..
Executive	Range Officer	Ranger	4	..
Protective	Foresters	Forester	18	..
	Forest Guard	Forest Guard	35	..
	Reserve Watcher	Reserve Watcher	35	..
Ministerial	Head cleark	Head clerk	1	..
	Accountant	Accountant	1	..
	Draughtsman	Draughtsman	1	..
	Typist	Typist	1	..
	District Forest Office Clerks	Lower Division Clerks ..	5	..
	Range Office Clerks.. ..	Do	4	..
Menials	Peons, District Forest Office	Peons	4	..
	Peons, Forest Range Office	Do.	4	..
	Bungalow Watcher	Bungalow Watcher ..	2	..

SECTION 2—LABOUR.

112. *Labour.*—There was no difficulty in procuring labour for the various regeneration operations carried out. By properly spacing out the various regeneration and other operations, the works could be carried out in time by having a labour force continuously resorting to forest works.

113. *Labour wages.*—The daily wages for labour paid now is given below :—

Male Rs. 1·25 per day.

Female Rs. 0·87 per day.

Boy Rs. 0·75 per day.

CHAPTER V—PAST SYSTEMS OF MANAGEMENT.

SECTION 1—HISTORY OF THE FORESTS.

(i) *Period up to* 1900.

114. *General.*—The East India Company came into possession of the Chingleput district during the first decade of the nineteenth centuary. At that time, the important forests were the Kambakkam hills and the Nagalapuram hills only. For some decades nothing much was done towards protection or improvement of the forests.

115. *Jungle Conservancy Department.*—In 1861–68, the Judge Conservancy Rules were introduced and permits were sold for removal of firewood and small timber. An attempt was also made to reserve certain forests permanently. At this time, it was noticed that the forests of Satyavedu Range were not able to meet fully the fuel demands of Madras. Casuarina planting was taken up in 1876 and the waste lands along the seashore to the north and south of Madras were planted rapidly with casurina.

116. *Reservation of forests.*—The reservation of the forests started in 1885 and was completed by 1902. From 1895, the system of localised permit fellings was introduced Under this system, areas which contained the best growth were selected for working. These worked areas were closed to grazing for six years, but due to lack of proper protection and organisation such closures were not effective.

(ii) *Period* 1900 *to* 1924.

117. *Formation of Chingleput division.*—During the first decade of this century, the Chingleput Forest division was constituted and the forests were continued to be worked under the same ' permit felling ' system.

118. Soon after the rapid reservation for forest areas complaints quickly followed that the reserve lines were too close to fields under cultivation and that too many restrictions were placed on the people in the matter of obtaining small timber and fuel from the reserves and grazing. In the course of some years, these clamours and complaints against reservation mounted up and were directly responsible for the creation of the Panchayat forests.

(iii) *Period* 1924 *to* 1955-56.

119. *Panchayat forests.*—During 1925, a Special Officer was appointed to examine and classify the forests of the then Madras Province into three classes. Of these the first two were to be permanently retained under the control of the department and the third one was intended to supply the requirements of the ryots and therefore was to be placed under their management. In this way, Panchayat forests came into existence.

120. *Abolition of Chingleput Forest Division.*—The remnants of the forests left in Chingleput Forest Division after handing over 32 square miles of forests for the Panchayats in the Chingleput district were not much. These forests left over with the department were constituted into a new range called Satyavedu Range with headquarters at Satyavedu and was added on to the Nellore Forest Division, after abolishing the Chingleput Forest Division.

121. *Administration of the panchayats.*—The carving out of the Panchayat forests from the forests under this department sounded their death-knell. All that were conserved and built up from 1882 were lost. Sir Daniel Richmond, the then Chief Conservator of Forests was against this *coupe de grace* in the administration of the forests. He took a number of photographs of these forests before handing them over to the Panchayats and gave them to the Board of Revenue to prove the indiscretion of this decision. These forests were again returned to the department one after another during the period 1946 to 1949. The degraded condition in which these forests were taken over by the department was a glowing tribute to the maltreatments to which they were subjected and the vandalisms perpetuated on them. Sir Daniel's vision came only too true. A scrub jungle not worthy of the name, with extensive uncontrolled fellings and mutiliated stumps, overgrazed by cattle, illicitly browsed by goats and not the forests which they took from the department was returned. Yet, their condition was not beyond repair. Special rehabilitation measures were immediately undertaken and concerted efforts, organized to restore them to their pristine condition to as large an extent as possible, were also made.

122. *Coastal Casuarina Division.*—During the Second World War, the firewood demand at Madras rose suddenly due to large infiltration of population into the City. This was accentuated by the short supply of coal and disel oil for industrial purposes, for which firewood was used as substitutes. The popularisation of producer gas units for motor vehicles also necessitated large scale production of charcoal from firewood. Consequently firewood was not available up to the requirements and the price also shot up high. The Government introduced firewood control early.

123. Since large scale casuarina plantations existed to the north of Madras City, and no such plantations existed towards the south, the Government considered it necessary to create a ' Coastal Casuarina Division ' to augment the firewood resources of the City. To start with, an Assistant Conservator of Forests with the necessary staff was posted on special duty for selection of areas suitable for planting casuarina—vide G.O. No. 2183, Development, dated 22nd May 1944 (One thousand nine hundred and forty-four). During 1944–45, 449 acres were planted in seven localities.

124. *Chingleput Forest Division.*—In 1945, based on certain proposals submitted, the Government in G.O. Ms. No. 2292, Development, dated 13th June 1945, sanctioned the expansion of the coastal casuarina division into a territorial forest division with headquarters at Chingleput and with jurisdiction over some panchayat forests and unreserved

lands in Chingleput and South Arcot districts. The Chingleput Forest Division was formed on 16th July 1945, with four ranges, viz., Chingleput Range, Tiruporur Range, Sriperumbudur Range and Marakanam Range. In G.O. No. 4014, Development, dated 24th October 1946, the Government transferred some more panchayat Reserved Forests to extend the casuarina plantations. On 24th May 1947, a fifth Range, viz., the Tirukoilur Range was formed according to the orders passed in G.O. Ms. No. 485, Development, dated 12th February 1947 to expand further the planting activities of casuarina. On 16th February 1949, the Satyavedu Range of Nellore Forest Division was transferred to the Chingleput Forest Division. In G.Os. Nos. 884, Development, dated 24th February 1948, 2088, Development, dated 26th April 1948 and 1784, Development, dated 2nd April 1949, the balance of the panchayat Reserved Forests in the Chingleput and South Arcot revenue district were transferred to the Development and they were included in the Chingleput Forest Division.

125. With the enactment of the Madras Estates (Abolition and Conversion into Ryotwari) Act, 1948, the estate forests came under the Government management. In G.O. Ms. No. 1416, Revenue, dated 2nd June 1951, the Government ordered the Forest Department to take over all the estate forests and then transfer the uneconomic units to the Revenue Department. The estate forests within the limits of this division were taken charge by the Forest Department on 15th October 1951.

126. *Territorial charges.*—On 15th May 1954, the territorial charges were reconstituted into six ranges, viz., Satyavedu, Trivellore, Chingleput, Marakanam, Tirukoilur and Vriddhachalam. As it was contemplated to rehabilitate the ex-panchayat Reserved Forests under several schemes of the Second Five-Year Plan, the following special divisions were formed within and in addition to the jurisdiction of the Chingleput Forest Division, during 1956–57 :—

Name of the division. (1)	*Headquarters.* (2)	*Authority.* (3)
1 Cashew Division	Adyar	G.O. Ms. No. 1600, Agriculture, dated 28th June 1956.
2 Fodder and Pasture Division.	Chingleput	G.O. Ms. No. 1761, Agriculture, dated 16th July 1956.
3 Rehabilitation Division ..	Cuddalore	G.O. Ms. No. 1797, Agriculture, dated 20th July 1956.

127. At the time of the general reorganization of the forest divisions in the State, the Government ordered in G.O. No. 2937, Agriculture, dated 21st December 1956, the amalgamation of the existing territorial and special divisions and the reconstitution of the following territorial divisions, in order to avoid overlapping jurisdiction and to enforce effective control :—

Name of division.	Headquarters.
(1) Saidapet	Madras.
(2) Chinglepet	Chingleput.
(3) Cuddalore	Cuddalore.

The Fodder and Pasture Division continued as a separate Functional Division.

128. The Saidapet Forest Division with headquarters at Madras was formed on 1st February 1957 with the following ranges :—

Name of range.	Headquarters.
Satyavedu	Satyavedu.
Trivellore	Trivellore.
Tambaram	Tamabaram.
Kelambakkam	Kelambakkam.

Since Kelambakkam was found to be inconvenient for the location of the Range headquarters, it was shifted to Chingleput according to the orders issued in G.O. No. 3320, Miscellaneous, Food and Agriculture, dated 17th October 1957.

Section 2—Past systems of management and their results.

129. *General.*—The present jurisdiction of Saidapet Forest Division extends over portions of the Class I forests covered by the 'Revised Working Plan for the Nellore Forest Division' (1942–43 to 1957–58) by Sri M. H. Krishnaswamy and the Class III forests by the 'Working Plan for the Chingleput Forest Division' (1949–50 to 1963–64) by Sri P. Venkataramany and so the past systems of management will be dealt with separately for each working plan.

I. Areas under Nellore Working Plan.

(i) For the period up to 1941–42.

130. *General.*—For the convenience of discussion, the details of management for each forest produce is dealt with separately. The names of the Reserved Forests included in this Working Plan are Kambakkam, Kadur, Ardur, Satyavedu, Ambakkam, Nagalapuram, Allikuli and their extensions.

(*a*) Firewood.

131. *Coupe working.*—The working of the forests by coupe system was introduced in 1902–03, the coupe being sold to contractors who organized the fellings and disposal of the produce. In 1905, the contractors formed a combine and forced the prices down to about Rs. 2 per acre for even good coupes which when exploited departmentally fetched Rs. 8 per acre.

In 1905, Mr. C. J. Wouterz prepared a preliminary Working Plan which was returned for revision in 1907 to Mr. T. Bapu Rao who submitted the revised plan in 1908. The prescriptions were not approved by the Conservator who returned it for further revision. The plan was finally revised by Mr. S. Burhanudin in 1909 and was sanctioned in Board's Proceedings Forest No. 174, dated 22nd September 1909.

132. *Mr. Burhanudin's Plan.*—The important provisions of this plan were:

(*a*) Four Working Circles, viz., Timber, Fuel, Improvement and Pollarding were constituted and the area in each reserve was allotted to one or the other of the above working circles depending on the condition of the forest. The forests now under report fell under the Timber and Fuel Working Circles only, as detailed below: —

Timber Working Circle.

	ACS.
Kambakkam slopes	7,778
Kambakkam plateau	3,559
Nagalapuram slopes	4,638

Fuel Working Circle.

Kambakkam plain	4,490
Kadur plain	2,660
Ardur plain	2,949
Satyavedu	7,925
Ambakkam	5,963
Allikuli	6,569
Nagalapuram plains	5,058

A rotation of 28 years was prescribed in respect of Timber, Fuel and Improvement Working Circles.

(*b*) In the Timber Working Circle, only dead, dying and overmature trees were to be extracted. In the Fuel Working Circle, the system was coppice with standards retaining 25 standards to an acre.

(*c*) All blanks and open areas in the annual coupes were to be sown with indigenous species soon after felling and the areas were to be fenced.

(*d*) Felled coupes were to be closed to grazing for 7 years.

(*e*) All felled coupes and regenerated areas were to be rigidly protected from fire for 7 years after felling or planting. The Nagalapuram and Kambakkam hills were to be rigidly fire protected.

(*f*) Extraction of manure leaves was permitted from trees felled for fuel and from other areas only if they were more than 7 years old after final cutting. The plan was in force for 7 years but its provisions were not fully carried out. The fuel coupes were unduly large for working, the cultural measures were impracticable and the working of hill areas was incorrect. The question of grazing had not been dealt with adequately in the plan. By 1917, a revision was ordered, as the plan became unworkable.

133. *Mr. Devadasan's Plan.*—The plan revised by Mr. Devadasan in 1919 was sanctioned in Board's Proceedings No. 4, Forest, dated 21st January 1919. The entire working plan area was divided in to 37 working circles (the term working circle was wrongly applied to felling series). The plateau and hill slopes of Kambakkam and Nagalapuram hills were divided into working circles although no working was prescribed in them. The other

working circles consisted of fuel felling series, many of which were transferred when the panchayat forests were handed over to the Revenue Department in 1927. The silvicultural system was coppice with standards with a rotation of 30 years and with the size of the annual coupe 40 to 50 acres. The period of closure to grazing was increased to 10 years. In 1921–22 the Silvicultural system was changed to simple coppice in conformity with the change in the system of fuel working over the entire Presidency. Several deviations re-arrangements of the felling series and opening of new felling series were done during the period of the plan under proper sanction. In 1933, the period of closure to grazing was reduced to seven years. Actually, less areas than prescribed were only worked due to want of demand for the unworked areas. Charcoal burning was also permitted to be done in the coupes.

134. *Mr. Sahni's Plan.*—The working scheme for inland Ranges prepared by Mr. Sahni was sanctioned for three years from 1940 in Salem Circle Conservator's No. 3359/58-C, dated 30th January 1940. The scheme provided for 21 fuel series covering a total area of 29,842 acres to be worked under the simple coppice system with the retention of minor forest produce yielding trees on a rotation of 30 years. Rab regeneration was prescribed to be done free of cost by the subordinates and the results were variable. Less areas than prescribed were actually worked for want of demand and other reasons. Manufacture of charcoal and extraction of timber were also permitted during the working of the coupes.

(*b*) Grazing.

135. *Kancha System.*—The details of the origin and development of the Kancha system as it exists to-day has been described in detail in pages 43 to 52 of the 'Revised Working Plan for the Nellore Forest Division' (1942–43 to 1957–58) by Mr. M. H. Krishnaswamy. This system was introduced in the Reserved forests of the Chingleput district in 1917. All the forests were divided into kanchas. The capacity of the kanchas was fixed on the basis of 2 acres per cow unit except in Kambakkam, Satyavedu and Allikuli reserves where the capacity was reduced on the basis of 4 acres per cow unit. After handing over the panchayat areas to the Revenue Department, the kanchas were re-numbered. There were no pentas or foreign kanchas in Satyavedu Range.

136. As the kanchadras were oppressive and tyrannical, the auctioning of the kanchas was replaced by the levy of fixed grazing fees by the Government in G.O. No. 379, dated 13th February 1937 and for the protection of the kanchas, the appointment of watchers was also sanctioned. Again in G.O. No. 836, Development, dated 29th March 1938, the Government ordered the halving of the grazing fees. The prevailing rates are—

	Local cattle.	Foreign cattle.
	RS. A. P.	RS. A. P.
Buffalo	0 10 0	0 12 0
Cow or bull	0 8 0	0 10 0
Sheep	0 3 0	0 4 0

In 1941–42, there were 39 local kanchas spread over an area of 34,971 acres.

(*c*) Bamboos.

137. *Bamboos.*—The bamboo areas were formed into three coupes in 1919, with two coupes in the Nagalapuram hills and one coupe in the Kambakkam hills. There was no regular demand for these coupes. Attempts to introduce bamboos artificially were also not successful.

138. Mr. Sahni, in his scheme formed a new series out of these bamboo forests. There was no regular demand for these areas even then. In the meanwhile *Bambusa arundinacia* seeded and *Dendrocalamus strictus* also flowered sporadically during 1940.

(*d*) Minor Forest produce.

139. *Minor Forest produce.*—These were leased out annually.

(*e*) Manure leaves.

140. *Manure leaves.*—Mention has already been made about the provisions for manure leaves made in Mr. Burhanuddin's Working Plan. Suggestions were made to lease out the Working Circle annually for manure leaves and to plant up manure leaf species in felled coupes. Much damage was done to the standing crop due to heavy fellings and loppings. In the Working Plan of 1919, collection of manure leaves from the fuel coupes was permitted. The right to collect the manure leaves was leased out Kancha-war and the species were restricted to *Calatropis gigantea*, *Glycosmis pentaphylla*, *Dodonea viscosa* *Webera corymbosa*, *Holorrhoena antidysenterica*, according to the orders of

the Conservator of Forests. Since the prices obtained deteriorated, the permit system was revived in 1933. Government in their No. Mis. 1573, Development, dated 14th July 1937, ordered that as an experimental measure in localities where a demand for manure leave exists, fuel coupes may be leased three months in advance of fuel leases for the collection of manure leaves. Even though the periods were extended to 6 months and 9 months subsequently, there was no response for these fuel coupes. Under G.O. Ms. No. 1802, Development, dated 18th July 1939, permits were issued at Re. 0-1-3 per head-load and Rs. 1-8-0 per cart-load.

(*f*) Fire protection.

141. *Fire protection.*—The fire protection operations in the hills and plains were started in 1885. A system of fire lines were fire-traced and watching establishment was also maintained to ward off the fires. In 1924, the fire patrols were totally dispensed with, as the operations were considered to be costly.

(ii) For the period 1942–43 to 1955–56.

142, *General.*—The " Revised Working Plan for Nellore Forest Division by Mr. M. H. Krishnaswamy, which covers this period, consisted of five Working Circle as given below :—

(i) Fuel Working Circle.

(ii) Fuel Plantation Working Circle.

(iii) Casuarina Working Circle.

(iv) Grazing Working Circle.

(v) Minor Forest Produce Working Circle.

In the paragraphs that follow, the extent to which the prescriptions made in each Working Circle were implemented and the changes made therein are discussed in detail for each Working Circle for the Reserved Forests located within the Saidapet Division.

143. *Fuel Working Circle.*—Twenty-one felling series covering an area of 26,401 acres were formed in this Working Circle. The areas prescribed for working and the actual areas worked are given in Appendix XI. A scrutiny of the above statement shows that there was no steady demand for all the coupes in the various felling series. The coupes of the felling series, viz., Kothamarikuppam, Peddaittipakkam, Ambakkam, Pudukuppam and Dasakuppam were not sold regularly due to poor stocking in the area. An inspection of these areas also revealed that they needed rest and time for recouping. So, it has been decided to close down the above fuel fellings series, viz., Kothamarikuppam, Peddaittipakkam, Pudukuppam and Dasakuppam.

144. *Method of treatment.*—The silvicultural system prescribed was simple coppice with the reservation of healthy and sound trees yielding minor forest produce up to a maximum of five in the inland Ranges. The rotation of 30 years was continued. No allotment of coupes against particular years of working was done, but the coupes laid out from I to XXX were prescribed for regular working in serial order. The yield was regulated by area.

145. Survey and demarcation of the coupe in December of the year preceding that of working were prescribed. The portions of the coupes that remained unfelled were prescribed to be sold the next year with the coupe of the year. The period of working was fixed as the financial year.

146. *Felling rules.*—The following felling rules were prescribed :—

(i) All standards and seedlings and saplings of valuable species not required by contractor should be left unfelled.

(ii) Fellings in another strip could be taken up only after successfully completing the work in one.

(iii) All fellings and removal by contractor should be carried out within the lease period.

(iv) Trees should be felled close to the ground level with stumps having a clean slant surface.

(v) No fencing of the annual coupe or leaving a belt of trees was required.

(vi) No debris heaping was required.

(vii) At places approved by Range Officer, charcoal burning was permitted.

(viii) Stacking of felled material before removal was not necessary.

(ix) Thorns and manure leaves should be removed only from strips under working. Since charcoal burning leads to malpractices and are not conducive the regeneration in the forests it is not desirable to continue this prescription.

147. *Subsidiary Silvicultural Regulations.*—Tendings were prescribed in rab areas regenerated in the felled fuel coupes during the last 2 years. No such tending was done as no rab regeneration had been done. The felled coupes were closed for grazing for three years after felling. The sale of small timber by coupe contractors to agriculturists for bona fide purposes were prescribed. The demarcation of the felled coupes by corner stones, the collection of statistics regarding outturn from the felled coupes, the maintenance of control records were prescribed. These prescriptions were generally carried out.

148. *Fuel Plantation Working Circle.*—This working circle was formed to do concentrated regeneration of fuel species over selected small areas instead of the different rab regeneration over extensive areas, to increase the productive capacity of the areas, to concentrate fuel production in order to release more areas for grazing and to reclothe effectively the clearfelled lateritic areas near Satyavedu. In the selection of areas, care was taken to select areas with deep well drained soil without boulders. Calcareous and saline soils were excluded. Areas with good growth of fuel species were not to be selected. Areas close to villages where adequate labour and demand for Kumri cultivation existed were preferred. An area of 1,232 acres were selected for regeneration and constituted into 3 series as below—

	ACS.
Kambakkam series	359
Satyavedu series	460
Nagalapuram series	413
	1,232

149. *Method of treatment.*—The silvicultural system prescribed was clearfelling and planting with suitable fuel species with or without agricultural crops. The rotation was anticipated to be 25 years. The yield from clearfelling areas for plantations was considered negligible. At the end of the rotation the plantations were expected to yield 25 tons per acre in case of casuarina, and 20 tons in case of other species.

150. *Annual regeneration areas.*—Regeneration was prescribed in selected areas in the order given in the working plan. No definite annual regeneration areas were prescribed. It was prescribed that small areas should be taken up for regeneration according to the availability of labour, kumridars, etc.

151. *Method of regeneration.*—The areas were prescribed to be regenerated with fuel species either by kumri method or departmentally or with casuarina plantations. The choice of the method was left to the management. The prescriptions under each method were :

152. *Kumri method.*—The annual area was prescribed to be surveyed and demarcated by a line of six feet width and handed over to the kumridar in January for doing the other operations as clearfelling, fencing, uprooting the stumps and burning. Any saleable produce obtained was to be disposed of at the discretion of the District Forest Officer. The remaining felled material were to be stacked in convenient strips or heaps and burnt in April or May. Ploughing once or twice as in ordinary agricultural practice was prescribed after the summer rains. After the receipt of rains in July, dibbling of the seeds of *Chloroxylon swietenia, Albizzia amara, Azadirachta indica, Albizzia lebbek, Acacia aureculiformis, Acacia leueophl ea and Hardwickiabinata* were to be sown in lines 22 feet apart departmentally. In each line, one species only was to be sown. The kumridar was permitted to sow his agricultural crops between the sown lines. He was expected to weed the lines and do soil working as and when necessary. After the harvest of the agricultural crop, he was expected to do a final ploughing in January and vacate the area. The subsequent soil working and other operations after the kumridar left the area were prescribed to be done departmentally. The failed lines were to be sown at intervals of a fortnight till adequate stocking was obtained during the first year. The kumridars were permitted to cultivate the area for 5 years and after the kumridar finally vacated the area, the intervening strips were to be ploughed and sown with seeds of fodder grasses and shrubs as *Ischaernum laxum* (Nendra), *Cenchrus ciliaris* (Kolukattai) *Crotolaria juncea* (sun hemp) and *Phaseolus* trilobns (pillipesaru).

153. *Departmental plantation.*—Survey, demarcation and clearfelling were prescribed to be done in the same way as under the kumri method. It was prescribed that the felled material be stacked to a width of 4′ along lines 22′ apart and burnt in April-May. Soil working to a depth of 9 inches and a width of 4′ and sowing of seeds of fuel species as in kumri method were prescribed. The intervening belt of 18′ was prescribed to be left as such. All the weeding soil working and other tending operations were prescribed to be done departmentally.

154. *Casuarina planting.*—Inland Casuarina planting was prescribed in areas with water table not lower than 20′. Compartment 21 (*d*) of Satyavedu Reserved Forest was selected for this planting. The turning of soil to a depth of 12 to 18 inches and ploughing the area before planting were prescribed. Fencing or digging a continuous trench 2′ × 3′ was prescribed. Planting of nursery raised seedlings of about 1½′ height with the entire root system at 6′ × 6′ espacement during the rains in August to October was prescribed. Watering for about 10 days, if there were no rains following planting, replacement of casualties during the first year and raising of field crop of horsegram of arika were also prescribed. A soil working in January after the field crop was harvested and watering during the hot season of the first year were to be done. Pruning up to 7′ height in the fourth year was prescribed. No thinning was prescribed. A rotation of 10 years was tentatively suggested.

155. A statement showing the areas prescribed for working and those actually worked is given in Appendix XII. Up to 1949–50, areas not more than 20 acres were taken up annually for regeneration. From 1950–51 onwards, no regeneration work was done except in 1952–53, as it was considered that the previous plantations were not successful. No casuarina plantations appear to have been raised.

156. *Other regulations.*—The plantations were closed to grazing for not less than 5 years including the year of formation. The erection of sub-compartment and plantation boards, the maintenance of sub-compartment and plantations lines and the maintenance of control records were prescribed. These were carried out as prescribed.

157. *Casuarina Working Circle.*—Since this working circle did not cover any of the areas of this division, the prescription of this working circle are not discussed here.

158. *Grazing Working Circle.*—In this working circle, all the departmental reserves excluding certain areas which were closed permanently or temporarily, were set aside for kancha system of grazing. The areas closed to grazing were as below—

	Area of reserve.	Area open to grazing.	Area closed to grazing.
	ACS.	ACS.	ACS.
Kambakkam Reserved Forest	15,645	7,180	8,465
Nagalapuram Reserved Forest	9,711	5,037	4,674

In addition, the felled coupes in the Fuel Working Circle were closed for a period not exceeding 3 years and the areas under Fuel Plantation Working Circle, for 5 years. A new kancha (K-40) in Satyavedu Range above Thantipandal in Kambakkam Reserved Forest was newly constituted.

159. The kanchas were classified as 'local' and 'foreign'. The former were generally close to villages and were intended to serve the requirements of the local cattle, while the 'latter' which were invariably situated in the interior. were intended to meet the requirements of the 'foreign' cattle. The District Forest Officer had the discretion to change the classification of kanchas 'local' into 'foreign' and *vice versa*. 'Local' cattle were those in villages within a radius of 5 miles from the Reserve boundary and 'foreign' those outside the 5 miles limit. It was recommended that permission for local cattle to graze in foreign kanchas might not be given unless the number of cattle exceeded 20. Kancha was fixed as unit of grazing and cattle were not to be allowed to graze outside the kancha limits. The grazing fees were levied as below—

	Local.	Foreign.
	RS. A. P.	RS. A. P.
Buffalo	0 10 0	0 12 0
Cow	0 8 0	0 10 0
Sheep	0 3 0	0 4 0

If local cattle were allowed to graze in the foreign kanchas, foreign rates were levied and if foreign cattle were grazed in local kanchas, only foreign rates were charged.

160. The capacity of each kancha was fixed on the basis of 2 acres per cow unit except in Rambakkam, Satyavedu, Ambakkam and Allikudi reservers, where. owing to paucity of gross, 4 acres per cow unit were allowed. The details of cow units allotted to each kancha was given for guidance. A statement showing the actual number of cow units allotted to each kancha and the actual incidence in each kancha with details of revenue collected are furnished in Appendix XIII for information. The incidence was generally less than the limit fixed for each kancha, except in a few cases where they were exceeded.

161. The permit for kanchas were prescribed to be issued by the subordinates of the department up to the indicated capacity. It was suggested that as the areas of fuel coupes closed to grazing were small in any kancha, it was not necessary to alter the capacity of the kancha.

162. Penning of cattle was restricted to foreign kanchas only and the existing concession regarding the clearing of penning sites, construction of huts, etc., were recognized. The closure period was fixed as three months from the 1st of July to the 30th of September. There were no pentas in these forests.

163. *Improvements to grazing.*—Certain details of improvements to water facilities as deepening of kuntas, strengthening of bunds were suggested to be carried out, if funds were available. These improvements were generally carried out.

164. *Rotational grazing.*—As the Ardur and Kadur Reserved Forests of Satyavedu Range supported very little grass, it was prescribed that rotational grazing might be tried in Kancha No. 6 of Ardur Reserved Forest by dividing it into 3 paddocks for 3 years. A capacity on the basis of 4 acres per cow was suggested. If the system succeeded, it was prescribed that the closure for 3 months from 1st July might be dispensed with. These prescriptions do not appear to have been implemented. The same kancha system, as was followed in the neighbouring reserves was adopted and permits issued regularly.

165. *Other regulations.*—A reduction in the number of kancha watchers employed was prescribed and this was carried out.

166. In order to minimize the incidence of grazing outside the kancha limits and to distribute the areas more evenly, certain additions of areas to kancha numbers 10, 11 and 14 of Kambakkam Reserved Forest were prescribed. These were done.

167. Removal of grass from areas outside the kancha limits were allowed free in case of head-loads, and in case of cart-loads, at the rate of 5 annas per cart-load. The maintenance of kancha boundary lines, erection of boards showing kancha numbers and the maintenance of control records were prescribed. These were generally carried out.

168. *Minor Forest Produce Working Circle.*—The minor forest produce available in the range except *Caccia auriculata* and *Cassia fistula* bark and rough stone quarries were sold with the range as units. These were sold as one unit till the formation of Trivellore Range in 1954, from when they were sold as two units separately for each range.

169. The right to collection *Cassia fistula* and *Cassia auriculata* bark from the reserves and unreserves excluding panchayats was prescribed to be sold for each taluk. This lease was not sold regularly for the Ponneri and Trivellore taluks as the demand does not appear to have been steady.

170. The stone quarries in kancha 19 and 20 of Satyavedu Range were prescribed to be sold on one year lease. There does not appear to have been any keen demand for this.

171. *Cashew planting.*—The raising of cashew plantations in Satyavedu Reserved Forest in compartments 1 *c*, 1 *d* and 2 *d* over a selected area of 133 acres at the rate of 10 acres each year by dibbling of seeds between July and October in prepared patches at 30′ × 30′ espacement was prescribed. The prepared patches were prescribed to be of four feet diameter and six inches deep. The selection of the sowing patches in the open, protection of cashew seedlings from cattle by strewing a few thorny branches over the patches and periodical soil working during the first two yeras were prescribed.

172. The cashew plantations were raised as prescribed from 1942–43 to 1945–46 only in Satyavedu Reserved Forest compartments 21 (*e*) and 2 (*e*) and Allikuli Reserved Forest compartment 13 (*a*). As these efforts proved to be not very successful, the regeneration operations appear to have been discontinued from 1946–47 onwards.

173. A statement showing the details of minor forest produce collected and the revenue realized has already been given in Appendix IX.

174. *Miscellaneous prescriptions—Fire protection.*—Fire tracing inter-district boundaries and boundaries of reserves which adjoin private forests along vulnerable portions, annual clearance of all reserve boundaries and clearing of roads, bridle paths, kancha lines, foot-paths, etc., were prescribed. These were generally carried out.

175. *Bamboo exploitation.*—In Thantipandal and Nagalapuram stops only bamboos were found to occur over 456 acres. It was prescribed that bamboos might be sold to local villagers for bona fide agricultural and domestic requirements at the rate of 2 annas per head-load, 6 annas per ass-load and Rs. 3–12–0 per cart-load. These prescriptions were followed.

176. *Charcoal supply.*—In order to meet the increased consumption of charcoal during the war years, the manufacture of charcoal in areas outside the normal fuel felling series without interfering with the grazing requirements were prescribed to be done in three series in Allikuli Reserved Forest. The system of working was simple coppice with 10 years as period of exploitation. The fixing of the area of the annual coupe was left to the discretion of the District Forest Officer. The method of working was prescribed to be on the lines similar to those of Fuel Fellings Series except that no standards were prescribed to be left. In the areas sold to purchasers, they were permitted to burn charcoal and dispose off the material. It was not necessary that the felled materials should be converted into charcoal. If necessary, even departmental exploitation was prescribed to be undertaken. The areas outside the kanchas which had been prescribed for charcoal supply were to remain closed to grazing. With regard to the areas inside the kanchas, the discretion for closure was left to the District Forest Officer. No artificial regeneration operations were prescribed in the felled coupes.

177. All the charcoal coupes in the three series except the coupe X of Alilkuli Series 3 were sold and exploited. The details of the areas worked and the outturn are given in Appendix XIV.

178. *Manure leaf removal.*—The removal of manure leaves from the reserves was controlled by the issue of permits at the rate of Rs. 1–8–0 per cart-load and Re. 0–1–3 per head-load.

179. The removal of green manure leaves from the reserved forests by the ryots for wet cultivation assumed importance during the war and postwar years due to the Grow More Food Schemes. The various Government orders passed controlling their removal from the reserved forests are described below.

180. The Government in G.O. Ms. No. 2220, Development, dated 17th October 1942, reduced the existing rate for removal of green manure leaf in cart-loads, viz., Rs. 1–8–0 per cart-load to Re. 0–12–0 throughout the State. In G.O. Ms. No. 3028, Development, dated 27th July 1950, the Government ordered the free removal of green manure leaves from the special manure leaf coupes demarcated for the purpose in all the forest divisions. In G.O. Ms. No. 3028, Development, dated 3rd August 1950, and G.O. Ms. No. 1090, Development, dated 13th March 1951, the Government ordered the demarcation of all fuel coupes in the State due for felling each year one year in advance of felling and allowing removal of green manure leaves by ryots subject to the following conditions :—

(i) leafy twigs below 1" diameter at the base only should be cut;

(ii) period of collection should be from April to January of the next year;

(iii) permits should be issued by the Forest Range Officers only to bona fide cultivators on production of a certificate from the respective village headman; and

(iv) collection and removal should be effected only between 8 a.m. and 5 p.m. and permit must be produced for check by Forest Officers.

Tthe Government in G.O. Ms. No. 1524, Agriculture, dated 6th May 1954, ordered that free removal or reduced rates of green manure leaf should be regulated by the issue of permits. The above regulations and concessions were also extended to the Estate Forests taken over by Government in G.O. Ms. No. 3007, Agriculture, dated 30th December 1955. Thus the removal of manure leaves from the forests under the control of the department is controlled by the issue of permits and is done under the following three categories :—

(i) free removal from special green manure leaf coupes;

(ii) concessional removal from other areas; and

(iii) free removal from the fuel coupes of the year, year to follow.

From the time of grant of the above concessions, they were continued year after year. In the latest G.O. Ms. No. 368, Food and Agriculture, dated 6th February 1957, these concessions were continued till the end of 1957.

181. *Sandal propagation.*—The propagation of sandal in Kambakkam plateau annually in six propagation centres accordnig to the practice described in the pamphlet published by Messrs. Mitchell and Wilson was prescribed. The work appears to have been done in 1946–47, 1949–50 and 1952–53 only and not in other years. Even during these three years when attempts were made, the success appears to be modest.

182. *Roads.*—The maintenance of the existing forest roads and bridle paths in good state of repair was prescribed. Certain changes and extensions to the following roads were proposed :—

(i) Ramacheri-Allikuli road.

(ii) Allikuli road extension.

(iii) Ramagiri-Jarukuloddu road.

These were generally carried out.

183. *Buildings.*—The maintenance of the existing buildings in good state of repair was prescribed and these were carried out. Certain repairs to the Satyavedu Forest Rest House and the inspection shed at Enadivettu were suggested. While the repairs to Satyavedu Forest Rest House were carried out, those for Enadivettu inspection were done only in part. The conversion of the thatched shed at Thantipandal into a rest house recommended to be done was not done.

184. *Establishment.*—Certain reduction in the number of beats was suggested. The Arudur and Kadur beats were not combined into one. The Kambakkam Reserved Forest has been divided into two beats as suggested. No other reduction in beats appear to have been carreid out.

185. *Panchayat Forests.*—The names of the forests managed by the village panchayats were: Erumaivettipalayam, Irugulam and Extension, Palavakkm and Extension, Manali, Siruvada, Nembalur and Extension, Senjiagaram, Alamadi, Ugumudu and Extension, Nayapakkam and Extension, Pullrambakkam and Extension, Mailapur and Extension and Vembadu.

186. These forests were managed by village panchayats consisting of a committee of not less than 5 members elected from cattle owners of the village. The President was elected by the members of the Committee. The term of office was three years. As stipulated in Board's Standing Order No. 195, the members executed an agreement in which one of the conditions was to pay a fixed amount in respect of each panchayat as compensation to Government. This amount was fixed by the Government in relation to the grazing fees collected by the panchayats. The main duties of the panchayats were protection, collection of grazing revenue, and carrying out improvements as repairs to water sources, dibbling of *Cassia auriculata* seeds, eradication of prickly pear, planting 2 trees annually, etc.

187. The details of the areas regenerated are given below :—

Year of regeneration.	*Name of reserved forest.*	*Area in acres.*	*Species planted.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)
1937	Nemalam	12	Red sanders, tamarind, sandal, inga dulce and mango.	Only red sanders good. 25′ high in 1951.
Do.	Siruvada	....	Red sanders	....
..	Erumaivettipalayam ..	900 trees.	Palmyrah	Height 10′ in 1951.
1945	Nayapakkam	1½	Terminalia arjuna, tamarind, neem, cassia siamea, acacia arabica, bassia latifolia naval, prosopis.	....
1946	Do.	7		
1947	Do.	7		
1948	Do.	6		
1949	Do.	10		
1951	Manali	19·5	Miscellaneous species..	By kumri method.
Do.	Nayapakkam	5	Inga dulce and prosopis juliflora.	....
1952	Siruvada	½ acre.	Sissoo, prosopis, neem ..	....
Do.	Nayapakkam	5	Inga dulce and prosopis juliflora.	....

188. *Protection.*—Watchers were employed to protect the panchayat forests and they were paid from the panchayat funds. A graded system of pay ranging from Rs. 4 to Rs. 10 was fixed to induce them to do good work. As even this low pay was not paid to them at times, they resorted to malpractices and this the protection of the foreste was far from satisfactory.

189. The supervision and control of these forests rested with the Revenue Divisional Officers subjected to the general overall control of the Collector. Before 1939, a few Deputy Tahsildars were posted to supervise the panchayat work. Due to their ignorance

of the technical knowledge, the forests deteriorated and the work was entrusted to an experienced Forest Ranger as ordered in G.O. Ms. No. 3153, Development, dated the 20th December 1938.

190. *Explanation*—(*a*) *Fuel*.—The forests were exploited for fuel according to the Working Plan by Mr. Foulkes current at the time of transfer. The fuel coupes were classified as major and minor. In major coupes the rotation adopted was 25 to 30 years. The silvicultural system adopted was simple coppice with the retention of fruit-bearing trees. The coupes were closed to grazing for a period of five years after felling. The revenue from the fuel coupes were remitted to the Government, who gave a proportionate amount as compensation for the loss of grazing revenue due to the closure of the felled coupes to grazing. No cultural or regeneration operations were done and the coppice growth re-stocked the area. The minor fuel coupes were formed and sold by the panchayats where no major coupes existed. The areas of these minor coupes varied from 10 to 15 acres and the revenue realized by the sale of minor coupes went to the panchayats.

(*b*) *Manure leaves*.—Manure leaves were permitted to be removed on a 3-year cycle. The annual areas were sold and exploited. Usually, the removables were not confined only to annual coupes. It was spread all over the area.

(*c*) *Grazing*.—The grazing fees were the main source of revenue to the panchayats. The grazing incidence varied from 2 to 4 acres per cow unit, depending on the quality of grazing available. The kinds of grazing fees levied are —

	Buffaloes.		*Cow and bull.*		*Sheep.*	
	RS.	A.	RS.	A.	RS.	A.
(i) Enhanced or special rates ..	2	0	1	0	0	8
(ii) At full rates	1	8	0	12	0	6
(iii) At privileged rates	1	0	0	8	0	4

Very little improvement to grazing, except the deepening of a few kuntas, was carried out. The details of grazing revenue realized in the panchayats of Tiruvallur taluk in 1940–41 were Rs. 1,014–10–0 for 1,479 cow units at full rates, the privileged and special rates of grazing being absent. The details of grazing revenue collected are furnished in Appendix XV.

191. *Financial position*.—The general financial position of the panchayats in Tiruvallur taluk was quite satisfactory as given below :—

Number of panchayats	7
Total income of all panchayats	Rs. 1,239—0—2
Number of panchayats that had cash balance at the beginning of the year.	5
Total cash balance at the beginning of the year.	Rs. 514—11—1
Total amount at the disposal of the panchayat.	Rs. 1,753—11—3
Total expenditure for the year	Rs. 1,252—5—5
Balance at the end of the year	Rs. 501—5—10
Number of panchayats that had cash balance at the close of the year.	7

192. The other details of working of the panchayats for the Tiruvallur taluk for the fasli year 1940–41 are given below :—

Number of panchayats	7
Area in acres	5,728
Amount payable by panchayat to Government ..	Rs. 699

Cow units—	
(a) Fixed by Government	2,247
(b) Permitted by panchayats	1,479
Area of manure leaf cut in the area	Entire area
Area of the fuel coupes cut in the year	9 acres.
Number of watchers employed	Nil.
Number of trees planted and kept living at the end of the year.	Nil.
Area closed to grazing on account of fuel coupes and other reasons.	Nil.
Removal of prickly-pear at a cost of	Rs. 2
Ponds or wells repaired or sunk	Nil.
Other improvements at a cost of	21
Number of panchayats that had cash balance at the end of the year.	7
Total amount of cash balance	Rs. 489—5—10
Number of offences detected—	
(a) Goat browsing	16
(b) Others	95
Number of offences disposed of	28
Compensation fees levied	Rs. 348—15—6
Condition of the panchayats—	
(a) Good	Nil.
(b) Fair	5
(c) Improving or indifferent	2

193. *General.*—The condition of the forests had deteriorated considerably partly due to destructive methods of exploitation and partly due to mismanagement. Many of the forests which supported dense forest growth formerly turned into open scrub jungle. Membership of the panchayat was keenly sought for political or personal ends. Mismanagement was either deliberate for selfish ends or was the result of the Presidents and Members of the panchayat being too pre-occupied with their other affairs to be able to devote adequate attention to their trust and more often it was a combination of both factors. The panchayatdars even if they had the time and interest for this work, they were hardly fully equipped for the job on hand. Regeneration was often restricted to the minimum of planting 25 trees per annum. Promiscuous goat browsing not only destroyed the existing tree growth but did not give a chance for regeneration to come up. The short sighted and insular panchayats were interested neither in preservation and planting for posterity nor in anything beyond the immediate legitimate or illegitimate benefits to themselves. The necessity to look after these forests in the proper way under suitably trained officers was more keenly felt and resulted in taking over of these panchayat forests by the Forest Department after some years.

194. *Maintenance of control records.*—The control records were not properly maintained regularly and the position was far from satisfactory. It was not possible to ascertain whether several of the operations prescribed were carried out or not. Even in places where information was given, it was scanty.

195. *Estate and inam forests.*—With the taking over of the Zamin inam and mitta areas under the Madras Estates (Abolition and Conversion into Ryotwari) Act, 1948, certain forest areas also came into possession of the department. The details of the areas taken over by the department and their areas are furnished in paragraph number 36.

196. An important forest that came to the department belonged to the Tirumalai Tirupathi Devasthanam Estate known as Kachinad forests. These forests were looked after by one Forester and 8 beat guards and watchers. These forests were worked for firewood and minor forest produce. The details of the minor forest produce and revenue collected are given in Appendix XVI.

197. Nothing much is known about their past working beyond what is narrated in the last paragraph. The forests were worked according to the wishes of the owner without any scientific basis. When these forests were taken over by the department,

they were in a degraded state Their condition was more or less that of the panchayat forests. The private owner never believed in conserving his forests for the posterity. All that were useful in the plain forests had been removed in some form or another. Charcoal burning and goat browsing were very common. After these forests were taken over, not only the portection of these forests was tightened up, but suitable areas were also taken up for regeneration purposes. The details of the various areas taken up for regeneration are indicated at the appropriate places. Some interesting notes on the condition and management of Kachinal forests were written by Sri K. R. Venkatramana Iyer, M.A., I.F.S. (Retd)., and these have been printed and published by the Tirumalai Tirupathi Devasthanam Board, Tirupathi.

II. Areas under Chingleput Working Plan.

198. *General.*—The Reserved forests of the Saidapet Forest Division which were covered by this Working Plan are the ex-panchayat Reserved Forests, i.e., Class III forests.

(i) For the period ending 1948–49.

199. *General.*—The management of these forests upto the time of formation of the village panchayats have been indicated in Section 1 of this chapter, along with the history of the forests. During that period, the management of these forests was more one of exploitation and maintenance than that of conservation and development. Even under the panchayat management, the management of these forests, at best, can only be described as one of the protection and planting of atleast 25 trees every year. Wherever possible, fuel coupes were laid out and worked. Grazing was permitted throughout the reserves. As the pattern of working was the same as that of the other class III Reserved Forests of this division furnished in paragraph numbers 187 to 195 and they are not of any importance, more details are not being furnished.

200. After these forests reverted to the Forest Department during the last decade, the major activity of the department was that of raising casuarina plantations. In addition few small scale plantations of miscellaneous species were also raised.

201. *Casuarina plantations.*—The details of the plantations raised are given below :—

Name of reserved forest.	Year of regeneration.	Area in acres.	Remarks.
(1)	(2)	(3)	(4)
Kayar	1944	49	..
Kayar	1946	89	..
Vandalur	1947	8	..
Unamanjeri	1946	42	..
Unamanjeri	1947	16	..
Vallam	1946	..	Failure.
Senkunran	1946	75	Do.
Mambakkam	1945	54	Do.
Sirukunram	1945	..	Do.
Sirukunram	1946	68	Do.
Sonalur	1946	76	Do.

202. As large scale failures were noticed during the first years, the plantations were inspected by the Chief Conservator of Forests in 1947 and he ordered that the regeneration areas should not be selected in inland areas. Even though the District Forest Officer was ordered to concentrate on replacing the casualties in the older plantations in 1947, nothing much could be achieved. The main reasons for such large scale failures appear to be—

(i) unsuitable regeneration areas : The regeneration areas selected for planting casuarina did not have adequate depth of good soil and the water table was also quite low.

(ii) incorrect technique : The regeneration technique consisted in clearfelling the scrub Jungle, digging one foot cube pits at 7 feet by 7 feet, planting the seedlings about July to October and watering the seedlings till the next June. In many cases, plantings were extended up to December, resulting in large casualties. In the scrub jungle, wood growth was a menace and frequent weedings were necessary to keep them down. As

the areas were neither hoed nor ploughed, the root competition killed the plants in no time. In most cases, the plantations were not fenced. When effective fencing was erected the plantations from 1950 onwards nearly cent per cent was obtained.

(iii) inadequate attention by the staff : Since the staff consisted mainly of temporary members and as the field staff of Forest Guards and Foresters were inexperienced new recruits, adequate care and attention could not be bestowed on them.

203. *Miscellaneous plantations.*—No plantations of miscellaneous species appear to have been raised during this period.

(ii) For the period 1949–50 to 1955–56.

204. *General.*—The first Working Plan for the Chingleput Forest Division was written by Sri P. Venkataramany, for the period 1949–50 to 1963–64, excluding the Satyavedu and Tiruvallur Ranges, which were already covered by the Revised Working Plan ' for Nellore Forest Division (1942–43 to 1957–58) by Sri M. H. Krishnaswamy.

205. The Chingleput Working Plan dealt with separately the reserves in the Chingleput and South Arcot revenue districts. Even among the panchayat reserves in the Chingleput district, only some were under the management of the department and the rest were still managed by the village panchayats. The Chingleput Working Plan covered both these forests.

(a) Reserved Forests under the management of the department.

206. *General.*—The following six working circles were constituted for these forests :

A. Casuarina Conversion Working Circle.

B. Fuel Plantation Working Circle.

C. Manure-leaf Working Circle.

D. Grazing Working Circle.

E. Minor Forest Produce Working Circle.

F. Protection Working Circle.

In the paragraphs that follow, the extent to which the presriptions made in each working circle were implemented and the changes made therein are discussed in detail for each working circle for the forests that are located within Saidapet Forest Division.

207. *Casuarina Conversion Working Circle.*—Out of the six planting series formed, only three fall within the division completely and three are only partly covered. The felling series are :—

		ACS.
A. Gudalur planting series	... ...	402
B. Maiyur do.,	... ...	300
C. Mannur do.	... ...	303
D. Mambakkam do.,	... ...	500
E. Kayar do ,	... ...	438
F. Thaiyur do.,	... ...	302

The Maiyur, Mannur and Thaiyur planting series covered certain areas that were outside the limits of the division. The plantations that had been raised from 1944 to 1946 were also included in the six felling series and the regeneration coupes were laid out from 1949–50 to 1963–64. Smaller regeneration areas were prescribed in each series, as the regeneration of inland casuarina was still under experiment and as there was scarcity of labour.

208. The details of expenditure incurred during 1949–50 are given below :—

Name of felling series.	Name f Reserved Forest.	Area.	Cost.		Remarks.
		ACS.	RS.	A.	
(i) Gudalur	Gudalur	10	607	13	..
(ii) Maiyur	Sankunram	15	176	10	..
(iii) Mannur	Mannur	15	650	0	..
(iv) Mambakkam	Mambakkam	10	817	13	..
(v) Thaiyur	Kolathur	10	340	6	..
(vi) Kayar	Kayar	10	327	14	..

In the above statement only in case of Mambakkam series, the cost of regeneration of casuarina plantations is given. In the other series, the cost of preliminary operations and that for raising miscellaneous species is furnished.

209. The planting operations in this Working Circle except that of Mambakkam series was not taken up in view of the orders of the Chief Conservator of Forests stopping planting of casuarina plantations in inland areas. No. 15,563/47, dated 16th September 1949. In the areas already prepared for regeneration in the other five series, seeds of miscellaneous species were sown. In Mambakkam Series, 10 acres of Casuarina plantations were raised in 1949–50 only. The same area was beaten up for casualties in 1950–51.

210. The casuarina plantations included in this working circle were ordered to be clearfelled in 1955 in Chief Conservator's Proceedings No. 34240/53, dated 24th November 1953 as the then Chief Conservator of Forests (Sri V. V. Subramaniam, I.C.S.), considered that these plantations were situated in vulnerable areas which caused thefts to take place in these areas. For the same reasons, no fresh plantations also were raised. It is considered that the position could have been remedied by reinforcing the existing protective staff and tightening up protection on all sides, instead of giving up the scheme altogether and cashing what is on hand.

211. *Silvicultural system.*—The silvicultural system prescribed was clearfelling and planting with casuarina.

212. *Rotation.*—A tentantive rotation of 8 years was fixed, in the absence of any data.

213. *Espacement.*—In 1944–45, the espacement was 6 feet by 6 feet and it was changed to 7 feet by 6 feet and it was changed to 7 feet by 7 feet in 1946. As the quality of the plantations was poorer than that of Nellore, as the small stems fetched higher price and as the cost of regeneration for lesser espacement than 6 feet by 6 feet was not very much high in view of the dry technique adopted, an espacement of 3 feet by 3 feet was prescribed. The position was to be reviewed at the end of 5 years by the Silviculturist.

214. *Preparation of site.*—The annual area was surveyed, demarcated and clearfelled in April of the year of regeneration. If the felled material was saleable, it was sold with a time limit for removal till the end of April; otherwise the material was spread evenly and burnt. The area was ploughed with a bull-dozer tractor and levelled with the help of manual labour. A suggestion to make contour bunds of 2 feet width and 1½ feet high at intervals of 2 to 3 chains to prevent soil erosion in the area was made. These prescriptions were generally carried out.

215. *Nursery.*—Nursery beds were formed in the middle of the regeneration area in December. The area selected was free from white ants. The site was fenced and a well, dug to water the plants. Sheep were penned in the area for 2 or 3 nights and standard nursery beds were formed at 3 feet apart radiating away from the well as the centre, after ploughing the area. Seeds at the rate of one pound per bed were sown, covered with a sprinkling of sand or ash and a layer of casuarina twigs. The beds were watered both in the morning and evening with water can fitted with a fine rose. Weeding of the nurseries and pricking out congested patches were prescribed. When removing the plants from the nursery beds for planting, it was prescribed that the beds should profusely watered and the seedlings dug out and removed instead of pulling out.

216. It was considered that about 4 to 8 ounces of seeds per standard bed was sufficient to stock the beds and that one pound was a large quantity.

217. *Planting operations.*—Pits of one foot cube size were dug in July-August at 3 feet by 3 feet espacement after good soaking rains. Between September November, as soon as the North-East Monsoons set in, the pits were filled with the excavated soil and healthy seedlings with shoot not less than 18 inches and root not less than 12 inches were removed from the nursery beds and planted in holes made in the pits without bending the roots. Fine particles of sand attached to the roots were not shaken off and the soil was well pressed around the roots in the pits. As the method adopted was called 'Dry Technique', no watering was prescribed. The planting of seedlings along with the North-East Monsoon late in the growing season was found to result in large casualties as it did not produce established seedlings which could stand the heat of the summer months. If planting had been done in June–July, better results would have been obtained.

218. *Replacement of casualties.*—Casualty replacement was prescribed to be done as and when they occurred in the first year. For this purpose, the best and the vigorous seedlings from the left over stock in the nursery beds were used. It is seen that replacement of casualties has been done up to the end of December. Such an operation cannot afford the seedling adequate opportunities to establish itself and survive the hot season. It is considered that all replacements should be completed as the North-East monsoon begins and should not be done after October.

219. It was prescribed that as soon as the tip of seedlings was seen withering, a second seedling should be planted by the side of the withering plant. The removal of the withering plant was to be done during pruning operations. To allow two seedlings to remain in the same pit for about four years was not conducive to good growth of the seedling to be retained. Such a practice resulted in more casualties during the hot months due to the paucity of moisture in the soil. It is essential that the withering plant should be removed at least before the beginning of the hot season in order to afford a fair chance for the healthy seedling to survive.

220. *Tendings.*—Two weedings were prescribed for a radius of 18 inches round the plant in October and December. At the end of North-East monsoon rains in January, a thorough soil working round the plants to a radius of 18 inches and a depth of 6 inches was prescribed. These operations were generally carried out.

221. *Pruning.*—The prescriptions about pruning were not precise. Prunings were prescribed in the fourth or fifth year according to the rate of growth of the plants. All plants less than 3 feet height were to be left for pruning at the fifth year. Plants of height between 3 feet, and 6 feet were pruned to a height of 3 feet, leaving adequate crown for the plants to develop. Plants alone 6 feet in height and 3 inches in girth were to be pruned to a height of 9 feet. Removal of branches by a sharp knife at a distance of one inch from the stem without injuring the stem and removal of dead trees at the time of pruning were prescribed. If more than one plant existed in each pit, the retention of the best of them and the removal of the rest were prescribed. The operations were to be carried out in November departmentally under the supervisions of the Range Officer and the produce sold in auction.

222. The pruning in the plantation were carried out partly in the fourth year. In short rotation crops like Casuarina, one pruning at the fourth year is considered ample.

223. *Thinnings.*—The discretion to do thinnings, if found necessary, was given to the District Forest Officer. No thinnings were actually carried out.

224. *Fencing.*—During the first year, fencing with special military wire fencing or trench and mound fencing with the planting of *Euphorbia tirucalli, Jatropha cureas*, and *Prosopis juliflora* on mounds was prescribed. Trench and mound fencing only was done and it was found to be patchy in growth.

225. *Wells.*—No wells were prescribed for digging at the planting site in view of the ' dry technique ' to be followed.

226. *Final fellings.*—A programme of final felling was prescribed. The plantations due for final felling were prescribed to be sold in auction in February with the financial year as the lease period. Shorter lease periods for smaller areas were suggested. The felling rules prescribed included the uprooting of the standing growth to a depth not less than 12 inches, billeting the trees into three feet billets and stacking them in stacks of 9 feet into 3 feet into 3 feet before removal of produce from the area, as well the levelling of the entire area to cover all extraction pits and facilitate planting subsequently.

227. The final felling programme could not be followed in view of cessation of the planting operations and the clear-felling of all the existing plantations in 1953. At the time of clear-felling the felling rules were followed generally.

228. *Other regulations.*—The demarcation of the plantations by planting stones bearing the inscriptions of area and the year of planting at prominent places, the closure of the plantations to grazing for three years including the year of planting and the accurate maintenance of figures of yield and costs of plantation were prescribed. These were generally carried out.

229. In order to get the details of rainfall at each plantation, the maintenance of Planters' rain gauges was prescribed. But this was not done.

230. The Control Records, viz., Control Book, Record of Works, Plantation Journal and Ledger, Nursery Journal and Ledger, Control Journal and Control Map were maintained.

231. *Fuel Plantation Working Circle.*—This Working Circle was constituted with ten reserves with the object of bringing degraded forests under maximum fuel production of preventing repetition of regeneration of casuarina in areas where it had failed in the past and of releasing more areas for grazing by concentrated regeneration on selected areas. The selection of areas for this method of regeneration was done from areas containing adequate depth of soil, and without any scarcity for labour.

232. *Planting series.*—The areas of the Working Circle, viz., 2,595 acres was constituted into five planting series. Out of this, only three planting series fall within this division and the details are given below :

Name of the planting series.	Area of planting series.
	ACS.
Gudalur	445
Vandalur	525
Thaiyur	600
Total ..	1,570

233. *Silvicultural system.*—The silvicultural system followed was clear-felling followed by planting with suitable fast growing fuel species.

234. *Rotation.*—A tentative rotation of 30 years was fixed.

235. *Yield.*—As only poor areas were taken up for regeneration purposes, the yield was considered to be negligible. When the fuel plantations come ripe for cutting, a yield not less than 10 tons per acre was expected.

236. *Regeneration areas.*—A table of areas selected for regeneration was given, without allotting definite areas against each year. The regeneration of the plantations was to be done departmentally or by kumri method, according to availability. The area of the annual regeneration plot was left to be fixed by the District Forest Officer. The details of the annual areas taken up are given in Appendix XVII. It can be seen that only small areas ranging from 10 to 40 acres were selected for regeneration annually in 1949–50, 1951–52 and 1952–53 in the three planting series. No regeneration was done in 1950–51. From 1953–54 onwards, the regeneration under this Working Circle was given up in view of large areas that were taken up for regeneration as ' conservators ' plots in each range.

237. *Departmental regeneration.*—The survey and demarcation of the area with 6 feet wide strips was prescribed to be done in January. Before the end of March, clearing of 10 feet wide strips 33 feet apart was prescribed. Saleable material, if any, was to be disposed off. The debris was spread over the 10 feet wide strip in 4 feet wide belts and burnt in April–May. After working of the soil to a depth of 9″ to 12″ with a bull dozer or country plough, the following seeds were sown in three lines four feet apart along the 10 feet wide strip. *Prosopis juliflora*, *Pithecolobium dulce*, *Albizzia lebbeck*, *Albizzia amara*, *Acacia leucophlœa*, *Acacia farnesiana*, and Neem. Subsequent soil working and tending, as and when necessary, were to be carried out. Casualty replacement in poorly stocked areas by a second sowing was prescribed to be done just before the North-East Monsoon began. Thinnings along the lines were prescribed to be done as and when found necessary.

238. *' Kumri ' method.*—If there was adequate demand for kumri cultivation, this method was prescribed. Lands up to 25 acres could be granted to the kumridars by a permit under section 21 of the Madras Forest Act, by the District Forest Officer. The land allotted to any particular Kumridar should be consistent with his capacity and means for regeneration work and he should be in possession of the area for not more than 5 years. The area for each kumridar was to be demarcated and handed over in January. He could fell and remove all material for his domestic use. He was expected to clear-fell, burn and plough the area and sow seeds of the species given by the departmental subordinates in strips 4 feet wide and 33 feet apart from centre to centre. He was permitted to cultivate field crops except castor in the intervening strips and expected to do soil working twice in the first year for the forest crop and ploughing in January after the harvest of his agricultural crop. The subsequent tending and cultural operations were to be done by the department. Before the kumridar vacated the area, the intervening belt of 33 feet was to be ploughed by him and sown with seeds of good variety fodder grasses and shrubs.

239. Since there was no demand for Kumri cultivation the entire work was done departmentally. The prescription were generally followed.

240. *Other regulations.*—The closure of the regeneration areas for five years including the year of formation, the planting of stone slabs showing the name of the series, year of formation and area at prominent corners and the maintenance of control

records as ' control book for planting ' fuel plantation journal and ledger, record of works, plantation map and control journal were prescribed. These were generally carried out.

241. *Manure-leaf Working Circle—General.*—Only the plants portions of the ex. panchayat Reserved Forests were included in this Working Circle. Out of 8 series formed, only 4 full series and parts of two series fall within the limits of this division as shown below :—

Name of series. (1)	*Name of reserved forest.* (2)	*Coupe number.* (3)	*Area in acres.* (4)	*Total area of series.* (5)
1 Sonalur	Sonalur	I	320	
	Sonalur	II	380	
	Sonalur	III	400	1,100
2 Kolathur	Kolathur	I	428	
	Kolathur	II	813	
	Kolathur	III	425	1,666
3 Kumili	Kumili	I	240	
	Kumili	II	300	
	Kumili	III	296	836
4 Thirutheri	Thirutheri	I	217	
	Thirutheri	II	220	
	Thirutheri	III	230	667
5 Vattambakkam	Vattambakkam	I	614	
	Vattambakkam	II	509	1,123
6 Vallam	Vallam	III	142	142
			Total ..	5,534

242. *Method of treatment.*—Loping of trees and shrubs of manurial value except *Azadirachta indica.* (Neem), *Chloroxylon swietenia*, *Tamarindus indica*, *Scapindus emarginatus*, *Buchanania latifolia*, *Anacardium occidentale*, *Albizzia lebbek* and *Albbiz amara* on a felling cycle of 3 years was prescribed. The coupes were demarcated annually by 6 feet wide lines. The removal of manure leaves was permitted on payment of seigniorage fees at the rate of 12 annas per cartload and 9 pies per head load. Lopping of branches thicker than a man's thumb was prohibited. All shrubs less than three inches girth at ground level were prescribed to be cut at ground level without tearing the bark. Removals during the nights were prohibited.

243. For artificial regeneration of manure leaf species, detailed instruction for regeneration works over 595 acres were given for departmental and Kumri methods by forming two series within the limits of the division. These regeneration works were to be carried out only if an experiment started in Kattur Reserved Forest of Chingleput Forest Division in 1948–49 over 5 acres resulted in success. Since the Kattur Reserved Forest experiments failed, no regeneration operations were taken up.

244. *Working of coupes.*—In actual practice, difficulty was experienced in confining the removal of the manure leaves to the coupes prescribed for the year only. The ryots wanted the manure leaves from the reserves close to their fields and villages only and were not inclined to work particular areas for removal. The details of revenue collected and the quantities removed are given in Appendix X. The details of the concessions obtaining in the removal of green manure leaf by the ryots have been described in paragraph Nos. 180 to 182.

245. The Control Records prescribed in Control book, manure leaf plantation journal and ledger record of works and control journal were maintained.

246. *Minor Forest Produce Working Circle.*—The important minor forest produce of this division were prescribed to be sold annually to purchasers, taking each range as a unit of lease. The lease period was fixed as the fasli year from July to the following June except for cashew and sarapappu, for which the lease period was from January to June. There was no demand for these minor forest products except during 1949–50, when the rights for collecting the seeds of *Buchanania latifolia* from Gudalur Reserved Forest were sold.

247. *Grazing Working Circle.*—All areas except those notified for closure by the District Forest Officer from time to time for silviculture or other reasons, were included in this Working Circle. Different grazing rates for each cow unit were fixed for different

reserves varying from 8 to 12 annas. These rates were continued till 1953, when the Government in G.O. Mis. No. 3442, Development, dated 25th July 1953, fixed uniform grazing fees for all the reserves in the State as below :—

	RS.	A.	P.
Buffaloes	0	8	0
Cows	0	4	0
Sheep	0	2	0

248. *Monsoon closure* —During the panchayat management, the forests were closed to grazing in July and August every year and this was prescribed for continuance. The Government in G.O. Mis. No. 3442, Development, dated 25th July 1953, cancelled this monsoon closure treating these panchayat forests also on a part with the class I reserved forests.

249. *Imporvement to grazing.*—It was prescribed that rotational grazing or other improved systems of grazing might be introduced after the first five years by the District Forest Officer, in consultation with the Conservator of Forests. As uncontrolled and unauthorised grazing existed at the time of panchayat management, it was considered that preparatory period of 5 years was necessary. As these forests were in poor conditions without much growth of grass, the introduction of any improved method of grazing was considered premature and might not be successful and so the suggestion were not implemented.

250. *Protection Working Circle.*—All the reserved forest of the division not included in any of the working circles were included in this Working Circle for mere protection and no operations except grazing of cattle collection of grass and minor forest porduce were prescribed. In addition to carrying out these prescriptions, large scale regeneration works were taken up in certain forests as detailed in the next section.

251. *Miscellaneous regulations—Fire protection.*—As the forests contained semi-evergreen shrub growth fires were rare and so no general fire protection operations were considered necessary Fire tracing around old casuarina plantation which contained profuse grass growth was prescribed to a width of 6 feet along the boundaries during March every year, at the discretion of the District Forest Officer. No fire tracing was done for any of the casuarina plantations.

252. *Buildings.*—A programme of building construction for the office and residential accommodation of the executive staff of the division was suggested. These suggestions were not implemented due to paucity of funds.

253. *Roads.*—It was suggested that the various cart tracks leading to plantations and those along the reserve boundaries could be developed into fair weather roads. No special efforts were made to give effect to this proposal.

254. *Experimental garden.*—It was suggested that an experimental research garden under the control of the Silviculturist could be opened to study artificial introduction of casuarina and other quick growing fuel and manure leaf species and the afforestation of denuded hill slopes by contour trench or other suitable methods. This suggestion was not carried out.

255. *Other prescriptions and suggestions.*—The maintenance of the poorly stocked casuarina plantations upto the rotation age of 8 years was prescribed. This was only partly carried out as these areas were clear-felled in 1953 and afterwards under orders of the Chief Conservator of Forests.

256. Rectification of the defects in the boundaries of certain Reserved forests were prescribed. The rectification suggested for the maps were generally carried out; but those relating to the field were not implemented.

257. It was suggested that the unreserve lands under the control of the department could be taken up for reservation under the Madras Forest Act as early as possible. This work was not taken up during this period.

(b) *Forests not under the management of the Department.*

258. *Working Plan for Panchayat Reserves under the Management of the Panchayats, when they are resumed for management by the Forest Department.*—The names of the panchayats that fall within the jurisdiction of this division were :—Perumbakkam, Pulikoradu, Tambaram, Puduper, Thandarai and Extension Mittanamalli, Kovilpadugai and Extensions I and II and Tirumalaivoyal and Extensions I and II.

Out of the above reserves, the last four, viz., Thandarai and Extension Mittanamalli, Kovilpadugai and Extensions I and II have not yet reverted to the Forest Department and are still under the occupation of the military authorities (Base Ordnance Depot, Avadi).

259. *Method of treatment.*—It was suggested that the Tambaram, Pulikoradu, and Perumbakkam reserves might be constituted into a beat with headquarters at Tambaram and that the Pudupper Reserved Forest be added to the existing Nallur beat. The forests were to be strictly protected except for grazing which was to be controlled by the issue of permits at the rate of 3 acres per cow unit. These prescriptions were generally carried out. Grazing incidence of these forsets was not restricted to 3 acres per cow, but was much lower due to issue of large number of permits.

SECTION 3—SPECIAL WORKS OF IMPROVEMENT.

(a) *Silvicultural improvements.*

260. *Sandal.*—In 1916–17. at the instance of Mr. Cox, the then Conservator of Forests, sandal was introduced on the Kambakkam plateau by direct sowing adjoining roads and paths. In the working plan of 1919, the propagation of sandal was continued by broadcasting, sowing seeds, dibbling in pits or planting in bamboos or cane baskets. In 1928, a sandal scheme for annual regeneration of 5 acres was sanctioned. According to the scheme, sandal seeds were to be sown in the middle of June in prepared patches one foot diameter and three inches deep and ten feet apart. These were followed only for two years in the area adjoining the bungalow when the raising of propagation centres each ten feet in diameter in suitable localities was begun and continued till 1941. Between 1929 and 1938, fifty propagation centres were raised. The sowings of sandal have been successful in the Kambakkam plateau and the species is spreading naturally. The earliest sowings have produced trees of 18 inches grith and 25 feet height in 1941.

261. *Teak.*—In the Thantipandal valley in suitable areas teak plantations at the rate of one acre per year were raised from 1935 to 1941. As the results were not satisfactory, the operations were discontinued in 1941. The details of the regeneration operations carried out are summarised below :—

Year of regeneration.	Details of operations and results.
(1)	(2)
1935	Planted at 6′×6′ in prepared pits with stumps from Lower Godavari division. Seeds also sown in quincunx. Four weedings and soil workings done in first year. Casualties replaced in August 1936 by stumps from local nursery. Cost of formation was Rs. 9–3–0, but the subsequent operations were done by the subordinates free of cost. Plantation patchy and uneven. In 1941, height about 25′ and Girth at breast height 9 inches. Soil in the area light red loam and well-drained.
1936	Entire area clearfelled, burnt and ploughed up. Stump from Pollachi and local ones planted in prepared pits. Between planted rows, seeds from Kanara sown. By November as all stumps died, 500 local stumps were used for replacing casualties and seedlings pricked out from sown patches were planted. As plantation was patchy in 1938 stumps and seeds from Lower Godavari division were sown in prepared patches. Poor stocking in spite of repeated casualty replacements. Soil is stony.
1937	Clearfelled burnt and one year old stumps were planted at 6′ × 6′ in prepared pits in August 1937. Sowings were done in June 1937 prior to planting a safeguard against failure. All died. Area replanted with stumps in 1938 in prepared pits. Again all died except in a small patch. Poor soil.
1938	No regeneration operations were done.
1939	Clearfelled, burnt and seeds sown in July in advance of planting. No germination. Due (1) year old stumps planted in Crow bar holes in September. Upper half being stony soil was poor while the lower half was patchy in stocking.
1940	Clearfelled, burnt and planted with stumps at 6′ × 6′. Fairly well stocked in 1941. Soil red loam with loose boulders.

262. The average cost of plantations was Rs. 20 per acre. Except the 1935 and 1940 plantations others were failures. The failure is probably due to uneven distribution of rainfall and inhospitable soil factors.

263. *Karimarudu.*—The swampy area behind the inspection shed was planted with *Terminalia tomentosa* in 1935. The results were not satisfactory.

264. *Red Sanders.*—Since Red Sanders occurs naturally in the Kambakkam plateau, efforts to raise plantations of this species were made in one-acre plots every year from 1935 to 1938 near Wilson's Garden on the Kambakkam plateau. The operations done are summarised below :—

Year of operation. (1)	Details of operation and results. (2)	Remarks. (3)
1935	After clearfelling and burning, seeds of red sanders were sown in prepared patches at 6′×6′ espacement. Resowings done in August and September. 4 Weedings and soil workings done in first year. Results poor. Cost of formation Rs. 9—3—0.	
1936	After clearfelling, burning and ploughing seeds sown at 6′×6′ at a cost of Rs. 31—14—0. Casualties replaced by sowings in the first, second and third years. Poor res-ults.	
1937 and 1938.	As in 1935, trials were made. Poor results.	

Only the 1935 plot has been successful. The average cost of raising these plantations was Rs. 13 per acre. The plots were fire traced annually. As the results were poor, no more trials were made.

265. *Terminalia chebula.*—Near Wilson's Garden in Kambakkam plateau, experimental sowings over one acre were tried by the Provincial Silviculturist. Only six seedlings came up and they also died later.

266. *Bamboos.*—In 1930, attempts to raise bamboos in nursery beds failed. In October 1936, two and three old rhizomes of *Bambusa arundinacea* about 180 in number were planted along the stream banks in Nagalapuram and Kambakkam Reserved Forests. Only 27 sprouted. Seeds were also dibbled and they gave better results. In 1940 and 1941, Mr. Hart planted a few month old bamboo seedlings in suitable moist evergreen type forests in Kambakkam plateau under the shade of existing trees. Wherever possible watering was done by the subordinates free of cost. Only a few survived.

267. *Rab regeneration.*—The artificial regeneration of selected patches in felled fuel coupes on a small-scale was attempted in 1929–30 and subsequent years and satisfactory results were obtained. In 1929–30 concentrated patches of about 200 to 250 square feet in extent were soil worked and seeds of *Albizzia lebbek* and *Cassia siamea* were sown. These patches were fenced and hot weather pandal was erected. The work was done free of cost by the subordinates in 1929–30 and 1930–31. In 1931–32, about 2 acres were fenced with brush wood and were sown in prepared pits at 15′ × 15′ with *Albizzia lebbek* and *Cassia siamea* in alternate rows. In Ardur series, in lieu of patch regeneration, natural seedlings of *Pterocarpus marsupium* were tended. Removing inferior growth and soil working were the main items of work done. The real rab regeneration was begun in 1934 when 993 patches of varynig sizes were made and 312¾ measures of seeds of various species were sown. *Cassia simea* was the best; *Albizzia lebbek*, neem, tamarind and soapnut were fairly good. All these works were done free of cost by subordinates. In 1935, similar work was done in all exploited coupes and the results of sowings in burnt and unburnt patches were not different. Six hundred and twenty-four thousand eight hundred and ninety-six square feet or about 14 acres were regenerated at a cost of Rs. 93–10–9 only, as most of the works were done free of cost by the subordinates. In 1936 and 1937, rab regeneration was contniued on the same lines and cashew seeds were dibbled. Results were satisfactory.

268. In 1938, the rab patches gave place to rab strips 10 to 15 wide running over the entire length of the coupes. As many strips were formed as there was material for burning. While *Cassia siamea* was sworn along the sides of the strips, the other species like *Albizzia lebbek*, Tamarind, Neem, *Pithecolobium dulce*, Cashew, *Acacia aureculiformis* and bamboos were sown on the lines themselves. Intensive soil working was done at places free of cost by the subordinates and at other places under sanctioned estimates.

269. On the whole, the rab regeneration work had been quite successful. Especially in the Ramagiri and Jerukalodu, fuel series, they had come up very well and the method appears to have been prefected. The objections against rab regeneration that they were diffused over the entire area, were looked after carefully for the first one or two years only and that the essential cultural operations like cleaning and thinning, if properly carried out, would result in damage to natural growth both on the rab strips and the natural forest cannot be considered as formidable barriers especially when the question of regeneration of large areas are to be tackled. In any large scale regeneration work of fuel species in which quantity and quality counts, we cannot afford to spend large sums of money on tending operations for several years. So, at the end of the second of third year itself if

the plants are properly spaced by carrying out a final weeding-*cum*-thinning, there may not be any necessity to go over the area again. But, a certain minimum expenditure appropriate to the locality is required for successful regeneration work.

270. The quick growing *Cassia siamea* out beats all the other species in no time and cannot be recommended to be used along with ohter species. Neither is there much demand for it nor is it a good fuel or charcoal species. It is also subjected to disease and decay in the early stages.

271. The details of money spent on rab regeneration work are given below :—

Range name.	*Number of series.*	*Area sold in acres.*	*Revenue realized.*	*Amount spent on regeneration works.*
(1)	(2)	(3)	(4)	(5)
		A.C.	RS.	RS.
Satyavedu	22	9,527	90,555	843

272. Nothing much appears to have been done during the war and the post-war period that followed immediately. Under the First and Second Five-Year Plans, several regeneration operations were undertaken especially to improve the condition of the dry fuel forests.

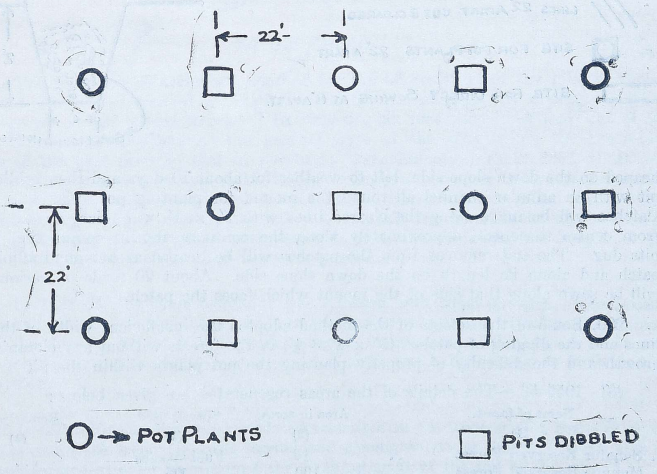
273. *Afforestation of dry fuel forests.*—From 1953 onwards, large scale afforestation schemes were taken up to rehabilitate the ex-panchayat Reserved Forests. Since it was a new venture, the regeneration technique adopted in 1953 underwent changes almost every year. The details of the regeneration techniques followed in the plains and hill forests are discussed below separately for each year.

(*b*) *Plains forests.*

274. 1953–54.—The areas regenerated during this year are given below :—

Name of reserved forest.	Area in acres.	Species used.	Remarks.
(1)	(2)	(3)	(4)
1. Tambaram	40	Fuel species	..
2. Sonalur	50	Do.	..
3. Nayapakkam	170	Do.	..
4. Satyavedu	155	Do.	..
5. Pullarambakkam ..	130	Cashew and other fuel species.	..

275. The regeneration method consisted in digging one foot cube pits at an espacement of 22′ × 22′ in the regeneration area well ahead of planting in November-December of the previous year so that there was adequate time for weathering of the soil. Planting was done in alternate pits after the soil was fully soaked in rain water and this was particularly stressed for obtaining success. Pot plants were used as planting stock. In the left over pits, dibbling of seeds was done early in the rains. The



species used for regeneration operations were mainly of fuel and small timber variety, viz., *Albizzia lebbek*, *Acacia arabica*, *Tamarindus indica*, Neem, *Albizzia amara* and others. Replacement of casualties was done several times as and when they were noticed.

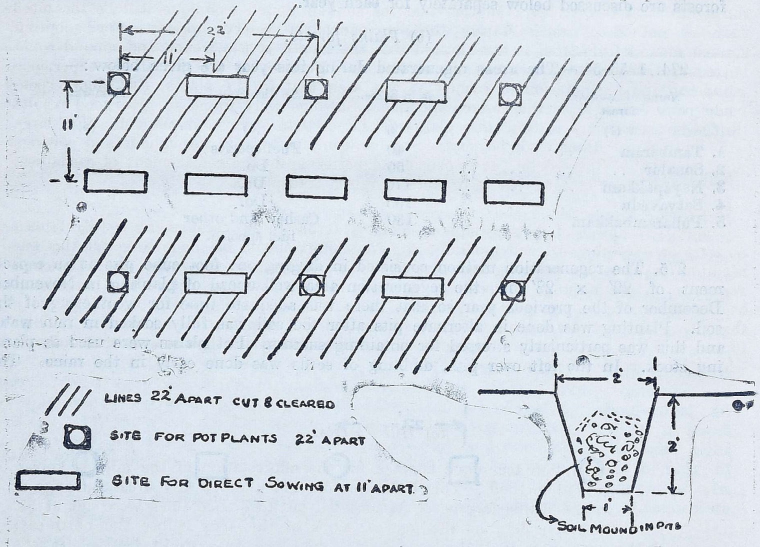
276. The regeneration areas were demarcated by cutting 6 feet wide strip lines. Elaborate methods of fencing the plot were done. A continuous trench of depth about one foot was dug around the regeneration plot and the dug-out earth was heaped to a raised mound of about one and a half foot high. A strong thorn fence of about 6 feet height was erected on the mounds with the following species. *Balsamodendron berryi* *Protium caudatum*, *Agave americana*, *Euphorbia tirucalli*, *Euphorbia antiquorum* and others. Seeds of *Prosopis juliflora* were also sown on the mounds. This fence was reinforced by the cut materials obtained in demarcating the area.

277. Since this was the first year of lauching on such large scale regeneration operations, there was difficulty in procuring adequate quantities of seeds and pot plants.

278. 1954-55.—The details of the areas regenerated are given below :—

Name of forest.		Area in acres.	Species used.	Remarks.
(1)		(2)	(3)	(4)
Gudalur Reserved Forest	.. ..	300	Fuel species	..

279. The pattern of digging pits and the subsequent earth work were considerably modified during this year, though the method of regeneration generally remained the same. Two feet wide lines were cleared at 22′ apart approximately along the contours and pits of size 2′ × 2′ at the top, 1′ × 1′ at the bottom and one foot depth were dug along the cut lines at 22′ apart to get an espacement of 22′ × 22′. The dug-up soil will be



heaped on the down slope side, left to weather for about 10 days and then refilled in the pit with an annular channel all round the mound for planting pot plants in the pits. Patches will be made along the cleared lines with 5′ × 1′ × ½′ size, spaced 11′ apart from centre to centre, approximately along the contours and in conjunction with the pits dug. The soil removed from the patches will be heaped as a mound adjoining the patch and along its length on the down slope side. About 20 seeds of various species will be sown along that side of the mount which faces the patch.

280. Some of the defects of the method adopted the insufficient width of the cleared lines and the digging of patches (5′ × 1′ × ½′) in the forests without any cleraning of the growth and the difficulty of properly planting the pot plants within the pit.

281. 1955-56.—The details of the areas regenerated are given below :

Name of forest.		Area in acres.	Species used.	Remarks.
(1)		(2)	(3)	(4)
1. Sonalur Reserved Forest	..	10	Fuel species	..
2. Mannur Reserved Forest	..	100	Do.	..

282. During this year, certain changes were introduced in the technique adopted and the 'sunken mound technique' came into existence. In the plains areas, trenches 11′ × 1′ × 1′ were dug at intervals of 22′ in lines 33′ apart. The dug up earth after weathering was placed in the middle of the trench to form a slightly raised (15″ high) flat mound, 6′ at the top, leaving the ends of the trench unfilled for collection of rain water. Seeds were sown in the mound. Container plants and seedlings from the nursery were also planted. The advantages of this technique are the worked-up soil and the water traps to conserve moisture.

283. The results obtained at the end of the first hot season in 1956 were nothing spectacular. Numerous seedlings from the sowings and the transplants were noticed on the mounds during the north-east monsoon. The poor results were probably due to not reducing the seedlings in each mound to a few before the hot season, when there is scarcity for moisture. It was also noticed that in general hot plants gave higher survival percentage than sowings after the first summer.

284. The sunken mound technique is an important stage in the proper evolution of the afforestation techniques of the low rainfall areas. The technique was developed by Sri V. S. Krishnaswamy, M.A., I.F.S., the Chief Conservator of Forests, Madras, and the full details are furnished in his article "Regeneration of dry fuel forests in Madras State" (Indian Forester, Volume 83, No. 1, pages 3 to 11).

285. As a result of the experience gained in the regeneration methods adopted during the last few years, it appears that the sunken-mound technique will be the most suitable method of rehabilitating these ex-panchayat reserve forests. For adopting sunken mound technique, it was noticed that the length of the trench and mound could be reduced conveniently to lessen the earthwork. Further, as a result of the experience gained in the regeneration of cashew it was seen that in the plains, the saucer spots could be as effective as the sunken mounds. Sowings were found to give good results till the hot season only. Container plants did better than sowings throughout. For large scale operations, it may not be possible to use container plants throughout and sowings may have to be resorted to. It is considered better to do the replacement of casualties, if any, with the container plants or nursery raised transplants.

286. The object of digging sunken mounds at 33′ × 22′ escapement is to establish at least one seedling in each mound. So, every effort should be made to select this one seedling as early as possible and give it all encouragement to come up. Hence a reduction in the number of seedlings per mound to a few just before the hot season begins appears to be the most important. These selected seedlings will be able to make the fullest use of the available moisture in the soil and come up. In addition, in order to conserve the soil moisture as much as possible during the hot season that follows, 'Mulching' is also recommended.

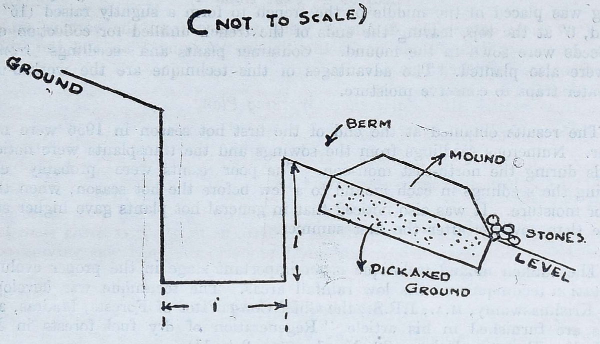
(c) *Hill Forests.*

287. The regeneration technique adopted for the afforestation of the hills is known as 'trench and mound method'. This technique did not undergo any drastic change as that followed in the plains forests. In 1953–54, six feet wide lines were cut at 33′ intervals taking into consideration the general slope of the area before the north-east monsoon of the year prior to that of planting. Trenches of length 11 feet, width one foot and depth one foot were dug at 22 feet intervals from centre to centre in the north-east monsoon. The dug-out earth was heaped on the low hill side. After the soil had weathered during the hot season, the soil was formed into mounds in the north-east monsoon and seeds of fuel species were sown in 2 or 3 rows along the length of the mounds. Pot plants were also used wherever possible.

288. In 1954–55, the same technique was followed with some changes. The ground on which the dug-out soil was thrown to form the mound was pick-axed before the replacement of the dug-out soil so that it might stay in its position. Dibbling of seeds was done in one row during the south-west monsoon if there was adequate rain or in the north-east monsoon.

289. In 1955–56, the changes introduced consisted in the leaving of a berm of about 6 inches between the trench and the mound and placing of stones on the low-hill side of the mound formed in order to minimise the washing away of the soil in the mound.

290. A sketch showing the mid-cross-section of the trench and mound is given below :—



291. The weeding soil working and other cultural operations were done as and when necessary.

292. The details of the areas regenerated during the three years are given below :—

Year of regeneration. (1)	*Name of forest.* (2)	*Area in acres.* (3)	*Species used.* (4)
1953–54	Vandalur	1	Fuel species.
1954–55	Vandalur	100	Do.
	Rajagu ta	50	Do.
	Nandanam	50	Do.
1955–56	Vandalur	146	Do.
	Rajagunta	50	Do.
	Nandanam	50	Do.

293. Sowing of seeds was largely adopted in this technique in view of the difficulties involved in transporting pot plants over hilly terrain. Further, the results also indicated that dibbled seeds gave higher percentage of survivals than the pot plants at the end of the hot season. So, dibbling of seeds was accepted as the method of regeneration in this technique.

294. As in the case of ' sunken mound technique ' the size of the trench was reduced to 6 feet and this resulted in the reduction of the cost of regeneration. The remarks made in paragraph number 286 regarding ' mulching ' hold good here also. The construction of shoulder drains to gather water for the trenches was introduced only recently.

295. *Other reegneration operations.*—The details of the other regeneration areas taken up during this period are given below :—

Year of planting. (1)	*Name of reserved forest.* (2)	*Area in acres.* (3)	*Species used.* (4)	*Remarks.* (5)
1950–51 ..	Kambakkam	..	Spear grass	..
1951–52 ..	Kambakkam	..	Spear grass ..	1,000 lb. were used for sowing.
1952–53 ..	Kambakkam	10	Spear grass	..
	Kambakkam	1	Softwood	..
1953–54 ..	Kamb kkam	1	Bamboo ..	..
1954–55 ..	Alamadi	5	Fuel species	..
1955–56 ..	Anjur	6	Bamboo.	..

The plantations were not very successful and were considered as failures except in Alamadi Reserved Forest, where they had come up well.

(b) *Other improvements.*

296. *Roads.*—A list of roads with other details are furnished in Appendix XVIII.

297. *Buildings.*—A list of buildings with the relevant details are furnished in Appendix XIX.

298. *Water-supply.*—A list of wells, tanks and springs are furnished in Appendix XX.

299. *Jeep with trailer.*—A new Willys four wheel drive jeep (MSY 6057) with a trailer (MSY 6058) was purchased at a cost of Rs. 12,420.

SECTION 4—PAST YIELD.

300. *Past yield data.*—The details of yield obtained from the various exploitation operations in each working circle under the Nellore Working Plan and the Chingleput Working Plan are furnished below :

(a) Nellore Working Plan.

(i) Fuel coupes—Appendix VII.

(ii) Fuel plantations—Appendix XII.

(iii) Minor Forest Produce—Appendix IX.

In case of fuel coupes, the yield forecast more or less agreed with those obtained. For fuel plantations, the yield obtained was meagre, as only poorer areas were taken up for regeneration. With regard to minor forest produce, the yield was varying according to seasonal growth and demand.

(b) Chingleput Working Plan.

(i) Casuarina plantations—Appendix VIII.

(ii) Manure leaves—Appendix X.

The yield from casuarina plantations was varying according to the stocking in each plantation and it was gnerally less than that forecast. The quantity of manure leaves removed depended on the demand and availability. Except for a small quantity of seeds of *Buchanania latifolia*, no other minor forest produce was sold or removed from these forests.

SECTION 5—REVENUE AND EXPENDITURE.

301. *General.*—Since this is a new division carved out of the old Chingleput and Nellore Forest Divisions, it is not possible to give any indications of past revenue and expenditure. Further, as the records maintained for the old Chingleput Forest Division also do not give the details seperately for each reserve it is not possible to calculate the details separately for this division. The details of the revenue and expenditure of the old Chingleput Forest Division from the beginning are given in Appendix XXI for information.

302. *Summary.*—A summary revenue and expenditure for the division is given below

Year.	*Revenue.*			*Expenditure.*			*Surplus or deficit.*		
(1)	(2)			(3)			(4)		
	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
1947–48 ..	16,643	12	0	2,21,153	11	0	—2,04,509	15	0
1948–49 .	58,997	8	9	1,99,891	14	0	—1,40,894	5	3
1949–50 ..	1,09,770	9	0	1,86,832	9	9	—77,062	0	9
1950–51 ..	1,35,244	14	4	1,66,796	8	0	—31,551	9	8
1951–52 ..	1,53,074	8	5	1,68,944	14	9	—15,870	6	4
1952–53 ..	1,28,027	9	1	1,81,897	11	0	—53,870	1	11
1953–54	1,25,390	7	0	2,11,506	8	0	—86,116	1	0
1954–55	2,26,851	0	0	1,87,986	0	0	+ 38,865	0	0
1955–56	1,86,495	3	0	2,33,486	4	0	—46,991	1	0
Total	11,40,495	7	7	17,58,996	0	6			
Average ..	1,14,049	8	9	1,75,849	9	7			

303. From the details of revenue and expenditure, for the class I Reserved Forests in Satyavedu and Trivellore Ranges furnished in the Revised Working Plan for Nellore Forest Division (1942–43 to 1957–58) by Sri M. H. Krishnaswamy, for the period 1931–32 to 1940–41, it is seen that there was very little surplus of Revenue. Since the Chingleput division mainly consisted of the scrub jungle of Ex-panchayat Reserved Forests, i.e., class III Reserved Forests, grazing was the main source of revenue. Further, as these forests had to be developed by undertaking intense Regeneration Operations, the expenditure was high. These are main reasons for the deficit in this division. This deficit will continue for some more years till the forests are fully developed and become ripe for exploitation.

SECTION 6—MISCELLANEOUS.

310. *Enumerations.*—In 1939, the Divisional staff carried out an enumeration of all old Chingleput Forest Division is given below for information :—

List of officers who held charge of Chingleput Forest Division.

Serial number and name. (1)	*From* (2)	*To* (3)	*Remarks.* (4)
1 Sri M. R. Doraiswamy Iyer	16th July 1945.	31st March 1947.	
2 Sri Chathu Nayar	1st April 1947.	21st June 1947.	
3 Sri N. Thirumoorthy	22nd June 1947.	4th November 1948.	
4 Sri Vriddhachalam Pillai	5th November 1948.	14th June 1950.	
5 Sri Mohammad Hussain	15th June 1950.	20th August 1952.	
6 Sri B. A. Cariappa	27th August 1952.	4th February 1954.	
7 Sri N. Ramakrishnan	5th February 1954.	6th February 1954.	
8 Sri K. P. D. Rao	7th February 1954.	13th March 1954.	
9 Sri V. S. Krishnaswamy	15th March 1954.	2nd April 1954.	
10 Sri K. P. D. Rao	3rd April 1954.	27th December 1954.	
11 Sri N. Ramakrishnan	28th December 1954.	30th January 1955.	
12 Sri K. P. D. Rao	31st January 1955.	..	
13 Sri K. Radhakrishnan		31st January 1957.	
14 Sri N. Ramakrishnan	1st February 1957.	..	Saidapet Division was formed on 1st February 1957.

CHAPTER VI—STATISTICS OF GROWTH AND YIELD.

305. *General.*—The data collected and the details of the methods used for collecting data during the compilation of this Working Plan are furnished in this chapter. In addition, the relevant statistical information collected in the past are also summarised here.

(*A*) *During this Working Plan Revision stock mapping of ex-panchayat reserve forests.*

306. *General.*—The ex-panchayat reserved forests were stock-mapped in order to assess the extent and nature of the growing stock existing there. As the time at the disposal was short and large areas had to be covered, it was decided to do an occular stock-mapping only by inspecting at least 10 per cent of the forest areas. For this purpose, base lines and strip lines were traversed with a pocket compass.

307. *Determination of fertility gradient.*—From the general lie of the country, it was seen that there was a general rise from the coast to the interior towards the hills. As the type of the forests varied with elevation, it was presumed that a fertility gradient existed from the coast to the hills in the interior. As the general direction of the lie of the hill ranges was found to have 20° North bearing, this bearing was taken for the base lines and 110° North was taken as the bearing for the strip lines.

308. *Details of field work.*—In each ex-panchayat reserved forest, the base line and the strip lines were drawn on a large scale map (8 or 4 inches to 1 mile) with the bearings given in the last paragraph. Along the boundary lines, the positions of the strip lines were peg-marked on the ground. The Forester walked along each strip line by maintaining the general direction with the help of pocket compass and marked the details of the growing stock as to their species, density, status of regeneration the yield per acre and other important features in the sketch. At the same time, the suitability of the portions of the Reserved forests for the regeneration of various species according to the regeneration techniques to be followed was marked in the sketch. He also wrote a short note about the forest growth and other details of importance. About 1,000 acres of forests were stock-mapped in a day. As these forests contained thick thorny growth, difficulty was experienced in following the exact direction of the strip lines. But, on the whole, the general direction was maintained in stock mapping and at least 10 per cent of the Reserved Forest area was covered. The details of stock-mapping done for each ex-panchayat reserved forest are given in Appendix XXII.

309. The areas selected for rehabilitation of dry fuel forests were classified into the following types :—

Type I.—Areas which contain adequate number of active tree stumps, trees pole crop, sapling or established seedlings 25 feet to 30 feet apart. These areas are classified into—

A. Plains forests.

B. Hill forests.

Type II.—Areas other than those falling undertype.

These areas are classified into—

A. Plains forests—

(*a*) Where kumri cultivation is possible.

(*b*) Where kumri cultivation is not possible.

(i) Where tractor ploughing is possible.

(ii) Where tractor ploughing is not possible.

B. Hill forests—

(*a*) Where adequate depth of soil occurs.

(*b*) Areas other than those under (a).

(B) PAST DATA.

1. *Shorea tumbuggaia.*

310. *Enumerations.*—In 1939, the Divisional staff carried out an enumeration of all *Shorea tumbuggaia* trees (Thamba) in the 8 compartments of Kambakkam plateau over an area of 1,500 acres and the results are summarised below :—

Compartment number.	Number of trees in one foot girth class.					Total.
	1—2	2—3	3—4	4—5	Over 5.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	539	150	15	2	..	706
2	1,324	310	26	1	..	1,661
3	805	184	10	1	..	1,000
4	565	328	22	2	1	918
5	620	252	19	..	..	891
6	648	122	7	3	..	780
7	590	96	14	..	..	700
8	1,127	344	40	3	1	1,515
Total ..	6,218	1,786	153	12	2	8,171

The results show that there were very few exploitable trees.

311. *Increment and regeneration.*—In 1919, an experiment to determine the annual girth increment, the variations in growth in different localities and the reasons for failure of natural regeneration in the Kambakkam plateau was taken up. Three plots, 2 near the rest house and one half a mile away from it were selected. All healthy *Shorea tumbuggaia* trees were marked with a ring of tar, numbered serially and the girth measurements recorded every year. To find out the cause of failure of natural regeneration. out of the 2 plots near the rest house, one was kept as control and in the other all undergrowth was removed. The girth measurement recorded for 19 years indicate that the aevrage annual girth increment is one-fourth of an inch. No appreciable difference in girth increment was found between trees selected in the two plateau. The natural regeneration in the plots were enumeratted annually and the records were not maintained chronologically. The enumerations made in 1940 showed that there were 1,009 in the experimental plot as against 502 of the control plot.

312. *Girth increment and coppicing power.*—To find out the increment and coppicing power of some of the important species in Kambakkam plateau, two plots were laid out in 1926. All inferior, malformed and crooked trees of superior species as *Terminalia pallida*, *Terminalia tomentosa*, and *Shorea tumbuggaia* were coppiced. The annual measurements recorded indicate that the increment was 0·4 inch for *Shorea tumbuggaia* and 0.2 inch for the *Terminalias*. All the three species were found to coppice poorly.

313. *Effect of fire on natural regeneration.*—In 1938, an experimenttal plot was formed on the Kambakkam plateau for studying the effect of fire on the natural reproduction of *Shorea tumbuggaia*. The undergrowth in the area was burnt annually and the natural seedlings were enumerated. Another plot nearly was kept as control. An enumeration in 1941 showed 1,009 seedlings in the experimental plot and 573 in the control.

2. *Cassia Auriculata.*

314. *Tannin content.*—In 1929 in Kambakkam Reserved Forest 5 acres was selected in the plains portion, divided into 5 plots of 1 acre each and one plot was broadcast sown with *Cassia auricutataa* seeds eevry year after clearfelling, burning and ploughing into area. In 1934, the shrubs were cut from all the plots and sent for tannin content analysis. The results were :—

Age.	Percentage of tannin.	
	Dry.	10 per cent moisture.
(1)	(2)	(3)
5	22·44	23·31
4	20·50	20·08
3	20·48	20·33
2	20·50	19·98
1	20·24	19·95

The results indicate that while the tannin content between the years 1 to 4 is inappreciable that for the 5 years old plants produced slightly better results.

315. In 1935, the coppice shoots from these plots were cut and analysed. It was found that the coppice shoots from the 5-year old seedlings gave uniformly good results.

PART II.

Future management discussed and prescribed.

CHAPTER I—BASIS OF PROPOSALS.

316. *Introduction.*—The measures prescribed for the forests which contain adequate tree growth and the degraded scrub forests vary considerably. Wherever demand exists and the condition of the forests also warrant it, Fuel Felling Series have been constituted. The other inaccessible forests containing tree growth will be protected as such. In the degraded ex-panchayat Reserved Forests, the prescriptions will mainly aim at the improvement of their conditions by suitable regeneration operations. Cashew plantations will be raised in the plains forest areas containing deep, well drained, red loamy soil. The other plains and a hill forest areas containing poorer type of soils will be planted up with miscellaneous species for firewood and small timber. Areas unfit for concentrated artificial regeneration purposes will be given protection and will be left to nature for rehabilitation.

317. The ex-zamin forests and reserved lands will generally be protected as such till they are constituted into Reserved Forests. Even in such forests suitable areas regarding the Government's title to them may also be regenerated.

318. *General objects of management.—The chief objects of management are—*

(i) to protect, and rehabilitate the ex-panchayat Reserve Forests which are in a highly degraded condition and which require rigid protection and immediate attention and to work these forest areas, along with others in conformity with silvicultural principles on the basis of sustained annual yield so that a maximum financial return will be assured in perpetuity to the State.

(ii) to regulate the supply of small timber, firewood grazing and other forest products to meet a tleast partially needs of the local population of the villages in the vicinity of the forests, in conformity with strict principles of forest conservancy and sound management.

(iii) to protect the catchment areas of water sources and to conserve the forests on the hills and denuded slopes in the interests of agriculture and supply of water to the tanks and streams.

319. *Measures to secure these objects.*—To attain the objects of management, various measures will be prescribed including the following :—

Firstly, suitable areas will be regenerated with cashew, after cutting and removal of the existing growth in strips, the older plantations will be properly tended, harvested and looked after;

secondly, the conversion of the existing degraded forests containing indifferent and poor growth into those containing better tree growth yielding small timber, firewood and minor forest product by adopting regeneration methods suitable to the locality factors in each area; the converted areas will be properly tended, and looked after;

thirdly, the areas which contain good saleable tree growth will be constituted into convenient number of fuel felling series and worked regularly by selling them to contractors; ...

fourthly, rigid protection of the hill forests, which are inaccessible or contain poor soil and which are not readily susceptible to concentrated regeneration operations, will be obtained and

fifthly, provision will be made for the regular collection of Minor Forest Produce, for providing grazing facilities to the local ryots, and for protection against fire.

320. *Working Circles their area and constitution and the method of treatment to be adopted in each.*—In order to achieve these objects of management and to give effect in detail to the measures considered necessary above, six working circles, will be constituted. The details of the constitution, area and treatments prescribed in respect of each of these working circles, are given below :—

(*a*) *Cashew Working Circle.*—This working circle covers an area of 16,785 acres. It is confined to forest areas which can support cashew plantations. The method of treatment will consist of clearfelling strips of forests and regenerating them in a concentrated manner. The cashew plantations will be tended and worked on a provisional rotation of 30 years.

(*b*) *Rehabilitation Working Circle.*—This working circle includes an area of 2,519.3 acres of degraded forests which however contain adequate depth of soil. The main object of this working circle will be rehabilitation of these degraded forests during a conversion period varying from 10 to 30 years. The methods of treatment vary according to the condition of the forests. The areas containing saleable tree growth will be coppiced by selling them as fuel coupes and in the following year, th portions which do not contain coppice growth of valuable species will be regenerated by the ' sunken-mound or ' saucer ' method. Blanks of extend more than 25 acres occurring in these areas will be regenerated by Sunken mound or saucer or trench and mound technique. The areas which do not contain such forests will be clear felled in patches and regenerated by ' Trench and mound ' method. Several species suitable to the localities will be used. The rehabilitated areas will be properly tended and looked after.

(*c*) *Fuel Working Circle.*—This working circle extends over an area of 20,644·2 acres. The method of treatment consists of clear felling and regenerating the area by simple coppice system on a felling cycle of 30 years. Sixteen Felling series will be formed to meet the demand of the local population.

(*d*) *Protection Working Circle.*—This working circle is spread over 122,247·70 acres. It consists of forest areas which are kept as reserve for future regeneration operations and so, they will be merely protected.

(*e*) *Minor forest produce Working Circle.*—In this overlapping working circle are included all the forests of the division. The right to collect all the minor forest products will be disposed off annually after dividing the area into convenient units of sale.

(*f*) *Grazing Working Circle.*—This overlapping working circle also included all the forests of the division except those notified by the District Forest Officer annually in the Gazette. Grazing of the cattle will be permitted after the collection of an annual grazing fee.

321. *Period of the working plan.*—This working plan will remain in force for ten years from the 1st of April 1956 to the 31st of March 1966.

CHAPTER II—WORKING PLAN FOR THE CASHEW WORKING CIRCLE.

SECTION 1—GENERAL CONSTITUTION AND CHARACTER OF THE VEGETATION.

322. *General constitution.*—The Cashew Working Circle included the plains forest areas of mainly ex-panchayat reserved forests and portions of reserved forest, which contain deep, red loamy soil, considered suitable for raising cashew. Small patches of cashew plantations already raised at various times are also included in this working circle. Some of these areas supported casuarina plantations, a few years ago.

323. *Character of vegetation.*—A full description of the forests has already been furnished in Chapter II of Part I. The areas selected for cashew plantations fall mainly under Champion's type (*a*) Carnatic Evergreen forests—Group 6 Tropical dry evergreen forest and (*b*) Southern Cutch thorn forest—Group 5-A Southern thorn forest-Type C-1., and their modifications due to adverse biotic influence.

SECTION 2—DIVISION OF AREAS AND ANALYSIS OF CROP.

324. *Area and formation of planting series.*—An area of 16,785 acres has been selected for planting up cashew. The whole area has been divided into six complete and two incomplete planting series as below :—

Complete series.

	ACS.
(*a*) Satyavedu series	2,579·6
(*b*) Uthukottai series	2,568·4
(*c*) Vandalur series	2,543·5
(*d*) Guduvancheri series	2,240·9
(*e*) Kovalam series	2,559·9
(*f*) Karumbakkam series	2,395·4

Incomplete series.

	ACS.
(*g*) Kattupakkam series	1,011·8
(*h*) Tirukalukundam series	885·5
Total ..	17,785·0

325. *Analysis of crop.*—No analysis of crop was done, as the forests conttain mainly shrub growth. The details of ocular stock-mapping done for each reserved forest are furnished in Appendix XXII.

SECTION 3—METHOD OF TREATMENT.

326. *Special objects of management.*—The following are the special objects of management :—

(i) to plant up with cashew the entire area in as short a time as possible in order to increase the productive capacity of these forests to the optimum extent;

(ii) to ensure the maximum net revenue obtainable on a sustained yield basis by the adoption of a suitable rotation and of such measures that would lead to the maintenance and the improvement of the site-quality; and

(iii) consistent with the above objects of management to continue to grow cashew plantations that will yield the maximum quantity of cashew nuts of the best grade.

327. *Measures to attain the special objects of management.*—To attain the above special objects of management, it has been decided to plant up the entire area available for cashew, during the Second Five-Year Plan period. It is not merely sufficient to grow the trees, but is also necessary to improve their capacity to produce the largest quantity of the best quality nuts. This can be achieved by the proper selection of seeds for nursery stock of raising the plantations.

328. *Choice of species.*—In addition to earning valuable foreign dollar exchange, cashew is emicently desirable from the point of view of conservation of soil in these degraded forests. It is a good soil binder, has a spreading heavy foliaged crown, and comes up well on a variety of soils and in areas of poor rainfall. So cashew is the species prescribed.

329. *Silviculture of cashewnut.*—Several experiments were conducted on the growth of cashewnut in the Central Cashewnut Research Station, Mangalore and other centres. The conclusions arrived at, which may be useful to us, are summarised below :—

330. *Viability.*—Cashew seeds stored in tin receptacles were found to give 80 per cent to 100 per cent germination till eight months after collection and the viability was lost completely at the end of fourteen months. Seeds stored in gunny and paddy straw lost viability completely at the end of eleven months as against 95 per cent to 98 per cent recorded by those in air-tight containers.

331. *Germination.*—There is no difference in germination of seeds collected during five different periods in the cropping season and sown simultaneously. Seeds not fully mature did not have any advantage over the mature ones. The seeds sown with the stalk end facing upwards in a slanting position two or three inches below gave a high percentage of germination and immunity from the pests that attack the fleshy edible cotyledones. Seeds sown deeper than three inches did not germinate properly. Presoaking of seeds did not increase the germination percentage appreciably.

332. *Floristics.*—As cashew produces flowers on the twigs and branches of the current season only, the factors which promote the better growth are directly responsible for higher yields. It was noticed that although there are two distinct growth flushes in the season, it is earlier phase from October to January that gives rise to panicles, while the later flushes of March to May are invariably unproductive. The hermaphrodite flowers occur only during the middle of the flowering season and mainly staminate flowers, during the beginning and end of the season. The accounts for the 'drying up' of inflorescences during certain periods of flowering due to the shedding of staminate flowers and this is sometimes mistaken for a disease.

333. The percentage of hermaphrodite flowers varies from 1.2 per cent to 9.7 per cent with a mean of 4.0 per cent while the ulttimate percentage of successful set works out to 3 per cent of total hermaphrodite flowers produced. The low setting is due to absence of adequate pollination in nature. Wind to a large extent and insects to an insignificant extent, are the agencies of pollination. Insect pollination may be high in a mixed than a pure crop. During the peak productions of hermaphrodite flowers, i.e., January—February, there is neither wind nor rain in normal years. If a shower or two occurs, bumper yield during this period has also resulted in high yields. It takes about 62 days for full ripening from the date of pollination. The duration of ripening extends from 45 to 70 days. When the apple is fully ripe, the nut is mature for harvesting. Picking of nuts is a daily feature as all nuts do not ripen at the same time. March-April are the busiest months for picking fruits.

334. As the yield of the tree depends on the production of hermaphordite flowers, and as the incidence of the production of the hermaphrodite flowers in the panicles is an inherent feature of the species and cannot be manipulated by cultural operations, the selection of proper high yielding mother trees is of prime importance. The distance between another and stigmatic end is also an important factor in obtaining high yields. Shorter style lengths and lower ratios of style length to stamen length are responsible for high yields. This factor also is an important one in the selection of mother trees.

335. Cloudy weather was found to have no effect on the shrivelling or drying up of inflorescence.

336. *Transplanting.*—It was found that under West Coast conditions one month old cashew seedlings could be transplanted successfully during any month of the year without any pretreatment provided the seedlings were given the necessary shade and water. Cutting the stem of the transplant to one third or half its height at the time of transplanting gave successful results. Even one year old seedlings, treated like this, gave 80 per cent to 90 per cent success. The above results were obtained in West Coast under conditions of high rainfall.

337. *Miscellaneous.*—Cashew is very sensitive to frost and cannot be grown above 3,000 feet Mean Sea Level.

338. An analysis of the weights of seeds shows that the kernal content in a nut (by weight) is directly proportional to the weight of the nuts, and that the size of the nut is not a reliable index of the contents and therefore the weight of the nut should be the main criterion for the selection of nuts.

339. Some of the observations made by private cashew nut growers regarding the influence of rainfall on crop production are given below :—

(*a*) In years of low rainfall during the monsoon, the yield tends to be sub-normal.

(*b*) Lack of adequate rainfall results in the reduction of nut size.

(*c*) Rainfall in March during the course of development of the nut, induces large nut size.

(*d*) Prolonged periods of cloudy weather or rain during the following season spoils the crop.

(*e*) Heavy rains in September and October, before flowering enhances the yield considerably.

340. Cashew is said to be not a perennial yielder; only in every alternate year. bumper yields occur.

341. *Silvicultural system.*—The system adopted will be clearfelling in strips followed by concentrated artificial regeneration with cashew.

342. *Rotation.*—No definite data is available as to the best rotation that can be adopted under forest conditions. Information gathered from private tope owners shows that the yield begins to fall down after 20 or 25 years. Probably a rotation of 30 years

under forest conditions will be suitable. It is said that trees die naturally in 40 years in low rainfall areas. Since actually no plantattions will become ripe for felling during this working plan period, the discussion about the proper rotation for cashew is not taken up and can only of theoritical interest here.

343. *Regulation of yield.*—Since cashew trees are regular annual yielders of cashew nuts, they will be regularly harvested every year through the agency of contractors.

344. *Calculation of yield.*—No exact data is available regarding the yield of cashew-nuts. In this connection, Sri V. S. Krishnaswamy, M.A., I.F.S., Chief Conservator of Forests, Madras, in his article on ' Cashew nut ' says; ' Yield '. It is said that from an acer of a middle aged plantation about 2,500 pounds of nuts or 600 pounds of kernals may be expected. After ten years, medium quality plantations are found to yield 800 to 1,200 lb. of nuts per acre. An adult tree is found to yield 30 lb. of nuts in the east-coast while the same will yield only 20 lb. in the westcoast. Some exceptionally big trees are found to yield even 100 lb. In Orissa individual trees are reported to have yielded 40 lb. on an average. According to one authority one acre will yield about 300 lb. in the Kerala State. But again all these yields entirely depends on the growth of the individual trees and the number of such trees raised in one acre.

345. The nuts with shell yield about 25 per cent to 30 per cent of kernals with pink skin. The yield of peeled kernals is 80 per cent to 90 per cent of the kernals with skin. The yield of shell oil is 12 1/2 per cent.

346. Even though individual trees have been found to flower even in the first year, only from the fifth year onwards the trees will start yielding some sizable quantity of nuts. The yield of nuts will then proggressively increase till they reach adult stage at about the tenth year from which time onwards, the full yield of about 1,000 lb. of nuts per acre may be realised. The yield of nuts during the period from the fifth year to tenth year may be about 500 lb. of nuts per acre per year on the average.

347. Assuming the above figures, the yield of nuts will be :—

1956-57 to 1960-61	No yield.
1961-62	1,700,000 lb. or Rs. 3,40,000.
1962-63	3,400,000 lb. or Rs. 6,80,000.
1963-64	5,100,000 lb. or Rs. 10,20,000.
1964-65	6,800,000 lb. or Rs. 13,60,000.
1965-66	8,500,000 lb. or Rs. 17,00,000.

348. In the above calculation, a value of 5 lb. of nuts per rupee has been assumed. According to fluctuations in the market prices, the revenue will also change.

SECTION 4—FELLING AND REGENERATION.

349. *Selection of areas for regeneration.*—This is the first time that large scale cashew plantations, are raised by the Department. Based on the experience gained in regenerating small patches of cashew plantations raised by the Department, the selection of areas has been done. As more and more, large scale plantations are raised, more knowledge about the areas suitable for cashew plantations will be acquired and in the light of this knowledge, the areas selected may be reviewed and adjustments, made. So, it is quite essential that District Forest Officer should thoroughly inspect the annual regeneration areas prescribed for planting and exclude such of those areas as are unfit for cashew.

350. Sri V. S. Krishnaswamy, M.A., I.F.S., Chief Conservator of Forests, Madras, in his article " Cashewnut ", while discussing the soil requirements, states :—

' *Soil requirement.*—This is a very valuable tree, all parts of which are quite useful and the tree as a whole is valuable as wind belt and for fixing shifting sands. So this is attempted to be grown everywhere and fortunately it comes up well in a variety of soils. In Madras State it has been grown successfully from sea level to 3,000 feet elevation in soils where most other crops will fail. It has come up in badly eroded sandy loams, in pure sandy areas, in hard laterite soils, in deep red loam and in rich alluvial soils. However, it fails to come up in clayey soils'.

351. While cashew can be grown on all kinds of soil, it appears to attain best size only in deep, well-drained loamy soil. Swampy areas with insufficient drainage clayey soils and ' Kallar ' soils have been found to be unsuitable for cashew and so such areas may be avoided. Cashew has been noticed to flourish well in lateritic soil.

352. *Table of annual regeneration areas.*—In the cashew scheme for the State prepared by Sri V. S. Krishnaswamy, M.A., I.F.S., Chief Conservator of Forests, Madras, about 45,000 acres has been fixed as the target for regeneration during the Second Five-Year Plan period. The extent of the areas that fall within the Saidapet Forest Division comes to be 16,785 acres. Consistent with the special objects of management for this working circle and the convenience of management the details of annual regeneration areas are laid out in the statement below :—

Year of regeneration. (1)	*Coupe number.* (2)	*Name of Reserved forest.* (3)	*Area in acres.* (4)
		A. Kattupakkam Series.	
1956	I	Vadakkupattu Reserved Forest (part)	500·5
1959	IV	Maganiyan Reserved Forest (part)	511.3
		Total ..	101 8
		B. Thirukalikundram series.	
1956	I	Tirutteri Reserved Forest (part)	500.5
1957	II	Do.	125.0
1959	IV	Kayar Reserved Forest (part)	260·0
		Total ..	885·5
		C. Satyavedu Series.	
1956	I	Irugulam Reserved Forest (part)	522·0
1957	II	Satyavedu Reserved Forest (part)	515 2
1958	III	Do.	512·8
1959	IV	Do.	511 2
1960	V	Do.	518 4
		Total ..	2,579·6
		D. Uthukottai series.	
1956	I	Mailapore Reserved Forest (part)	518·3
1957	II	Palavakkam Reserved Forest (part)	51 ·9
1958	III	Manali Reserved Forest (part)	506 6
1959	IV	Do.	507 0
1960	V	Do.	174·0
		Erumaivattipalayam Reserved Forest (part)	347·6
		Total ..	2,5 8·4
		E. Vandalur series.	
1956	I	Vandalur Reserved Forest (part)	501·1
1957	II	Do.	510·5
1958	III	Do.	51 ·4
1959	IV {	Do.	2 0 5
		Unamanjeri Reserved Forest (part)	301 0
1930	V	Kumili Reserved Forest (part)	506·0
		Total ..	,543 5
		F. Guduvancheri series.	
1956	I	Gudalore Reserved Forest (part)	558·4
1957	II	Do.	514·9
1958	III	Do.	527·6
1959	IV	Mallur Reserved Forest (part)	122·7
1960	V	Do.	517·3
		Total ..	2240·9
		G. Kovalam series.	
1956	I	Mambakkam Reserved Forest (part)	518·7
1957	II	Do.	513·3
1958	III {	Do.	100·2
		Sonalur Reserved Forest (part)	492·1
1959	IV	Do	513·6
1960	V	Do	395·0
		Kayar Reserved Forest (part)	90·1
		Total ..	2,558 9

Year of regeneration	Coupe number.	Name of Reserved forest.	Area in acres.
(1)	(2)	(3)	(4)
		H. Karumbakkam series.	
1956	I	Taiyur Reserved Forest (part)	507·7
1957	II	Do.	128·0
		Senkunram Reserved Forest (part)	380·8
1958	III	Do.	527·9
1959	IV	Anjur Reserved Forest (part)	401·1
		Sirukunram Reserved Forest (part)	128·1
1960	V	Do.	321·8
		Total ..	2,395·4

NOTE.—The areas of the coupes given above are only approximate, as they have been computed from the maps by planimeter only. The coupes have not been actually surveyed in the field and the surveyed area computed.

353. If it is contemplated to regenerate more areas with cashew, suitable areas from other working circle may be selected by the District Forest Officer.

354. *Preparation of site.*—The annual coupes, will be surveyed and clearly demarcated on the ground by means of cleared lines of 10 feet in width, in August of the year prior to the year of planting. The Regeneration area will be divided into a convenient number of equal plots of about 50 acres.

355. In October, planting lines at 33 feet apart will be aligned and all the growth to a width of 5 feet on either of the aligned line will be uprooted. Along each planting line staking at 16½ feet apart will be done to obtain stakes of espacement 33 feet into 16½ feet. At each stake, pits of 1 foot into 1 foot into 1 foot will be dug before the end of the North East Monsoon (i.e., December and the dug out soil. allowed to weabter during the hot season. During May of the year of planting, the pits will be filled in.

356. In June of the year of planting, saucers will be made around each one foot cubic pit already dug, as shown in the diagram below.

357. After the saucer is formed around the regeneration spot, the centre of the saucer will be dressed to have a slightly raised platform with the available soil so that it may revive the seed or seedling as shown in the diagram. The slanting surface of the saucers should be dressed clean so that they may aid in the conservation of maximum moisture. A bound will be formed along the periphery of the saucer. The work relating to saucers should be completed before the end of June.

358. *Planting.*—After the soil had cooled down as a result of one or two good showers of rain following the hot summer, dibbling will be done in the months of July-August depending on local rainfall. Cashew seeds at the rate of one per saucer spot will be sown with the stalk facing upwards and in a slanting position at a depth of two to three inches below the top surface of the regeneration spot. This can easily be done holding the seed with the stalk and upwards slantingly between the thumb and the index finger and pushing the seed into the soil. The seeds germinate in about 8 to 10 days. Dibbling will be repeated twice or thrice till the end of September. All the failed saucer-spots will be beaten up with container plants in the beginning of North East Monsoon in October.

359. During dibbling and planting, the shape of the raised platform should be disturbed as little as possible, in order to allow the cashew seedlings the benefit of the worked soil.

360. *Collection of seed.*—Since the object is to produce the maximum quantity of nuts of export quality, it is quite essential that tree of high yielding strain only are grown. Since no definitely isolated strains of seeds answering these requirements are available in the market ready for sale, great care should be bestowed in collecting seeds of the proper variety only. As far as possible seeds from areas having almost the same locality factors as those of the planting site should only be used.

361. Two varieties of fruits are known to exist viz., those with pink thalamus and those with yellow thalamus. It is generally believed that fruits with yellow thalamus yield better nuts than the other variety. So, seeds of the yellow thalamus fruits will be collected as far as possible.

362. Mother trees from which the seeds are collected should have low healthy spreading corwn. It is better to select healthy mother trees which occur in a group than stray isolated good trees among most of the bad ones. Stunted and small sized

trees should be excluded as a rule. About 3 lb of seeds per acre will be required for regeneration purposes. Since the areas near about Panruti, South Arcot district, produce the best nuts, the total annual seed requirement of the Saidapet, Forest Division will be purchased at Panruti. For this purpose, the District Forest Officer, Saidapet, will place his indent sufficiently in advance with the District Forest Officer, Cuddalore so that adequate supply can be ensured.

363. *Seed weight—Germination per cent and plant per cent.*—Sixtylfive to 115 seeds weigh a pound depending on their quality. Germinative capacity and plant per cent of selected seeds come to above 98 per cent and of unselected seeds vary from 80 per cent to 90 per cent. No pre-treatment of seed is necessary and untreated seeds give good germination. Sorting and selection of seeds do not give any significantly better results, but medium seized seeds that sink under water to give good germination seeds that float are rejected generally, though all seeds that float are not bad ones.

364. Cashew flowers during the months November to February. The fruits ripen in about 2 or 3 months and are available from Marcah to May. The trees start yielding commercially large quantity from fifth year onwards though there may be sporadic flowering and fruiting even from the first year onwards. The Cashew trees come to full bearing from the 10th year onwards.

365. Since the viablity of cashew seeds is about eight months and the seeding also occurs annaually, only the quantity required for the annual requirements shall be collected and stored in tin containers having tight lids. Such stored seeds will retain their viability during the initial dibbing and beating up operations also. Since there is a gap of about five months between the time of cashew seedling and the planting operations, it is essential to lay emphasis on the collection of the seeds of late fruiting trees only.

366. *Nursery practice.*—The required nursery stock of cashew plants will be raised in containers filled with good loamy soil. Baskets made of bamboo, or other suitable material or mud-pots may be used as containers. They may be circular shape with about 4½ inches in diameter 9 inches long and open at both the ends. According to the local resources available, the containers may be selected.

367. The idea of using small containers is to raise small seedlings in which the fishy cotyledonous leaves have just disappeared. Thus, the starting of the nursedies will be so timed as to get planting stock of proper size. It is considered that if nurseries are started about one month before the actual date of planting, proper size small seedlings will be obtained.

368 If containers liable to termite attack are used, they may be placed on raised platforms. A low pandal be erected to provide shade from the sun. The containers will be filled with loamy soil and one seed per container will be sown at a depth of two to three inches in the same manner as prescribed for dibbling the seeds in the saucer (Vide paragraph number 358). The containers will be watered regularly. For this purpose, is essential to locate the nursery near a water source. If suitable water sources are not available, the nursery may be located in a place where a well can be sunk.

369. The nursery stock required for planting will have to be estimated by the District Forest Officer, after assessing the success of the dibbling done in South West Monsoon. On the average, about 30 per cent of the dibbling fail and will bud planting with nursery stock.

370. *Purchase of containers.*—The interregnum between the South-west and North-east Monsoon is so small that the District Forest O fficer may not be able to secure the requisite quantity of containers locally. If the Southwest monsoon fails, he will be forced to raise container plants for the entire area. Further, containers made of bamboo and areca are perishable and cannot be stored for more than one season. So the District Forest Officer will arrange for about 30 per cent of containers made of material available locally every year that they are readily available in August. In addition, he will keep a reserve stock of about 70 per cent of containers made of 'Alkathene', which are not perishable and can be stored for years. The 'Alkathene' bags will serve as a stand-by only.

371. *Kumri cultivation.*—If there is demand for kumri cultivation, the area may be divided into 1 acre on 2 acres bits and leased out for cultivation. The period of lease will not be for more than 5 years, with the lease being renewable annually at the discreation of the District Forest Officer. If the areas are leased out for Kumri cultivation, the cost of clearance of interneing growth between the lines will be reduced considerably and so, Kumri cultivation will be encouraged.

372. *Replacing casualties.*—All banks not successfully regenerated by dibbling will be beaten up during the North-East Monsoon. During the North-east Monsoon since established container plants are used, generally no casualties will occur. If any occur due to insect or other damage, replacement will be done forthwith. Normally the replacement of casualties will not exceed 5 per cent of the planting stock. But some of the seedlings planted late in the season die during summer.

SECTION 5—SUBSIDIARY SILVICULTURAL REGULATIONS.

373. *Weeding.*—Since cashew is an exotic and does not tolerate root competition, it is essential to keep the plants free from competition from the weeds. It is because of this reason, the saucer spots should always be kept clean of weeds, as far as possible In order to achieve this object, the following weeding regime is prescribed :

374. *First year.*—In September and December, the saucers will be scraped and kept clean of weeds. A soil working to a width and depth of 9 inches around the one foot radius platform will be done in December along with scraping operation. In January-February, before the hot season begins, a hot weather mulching around the plant will be done.

375. *Second year.*—In May, September, and December the saucers will be scraped and kept clean of weeds. As in the first-year, a soil working will be done in December only. If any of the plants were found to be in flower, the flower stacks will be nipped off by hand during the weedings. No othre operations will be necessary.

376. *Third and Fourth years.*—No weedings are being prescribed as routine operations; but if the District Forest Officer considers that the condition of the plantations warrant, one or more weedlings he may carry them out.

377. Crepper cutting and maintenance of the 10 feet wide strip line will be done during all the weedings.

378. *Thinning.*—It is considered that no thinnings will be required. During the 10th year, the plontations may be inspected and if a thinning is considered necessary, every alternate tree along the planting lines of 33 feet may be removed to obtain an espacement of 33 feet × 33 feet.

379. *Yield from thinning.*—Since it is anticipated that all plantations will not undergo thinnings, the yield from thinnings is considered negligible. The produce available from thinnings will be billeted, arranged into fuel stacks and sold in open auction.

380. *Clearing of intervening growth.*—If the intervening growth between the 10 feet cleared strips complete with the growth of cashew trees, they will be removed to the extent desired as and when necessary except in the belts around each 50-acre plot as a measure against the dangers of monoculture over large areas. If there is demand for *Kumri* cultivation, the Kumridars will clear the intervening growth for cultivation.

381. *Care and maintenance.*—In order to afford the necessary care and maintenance required for these plantations, each 50-acre plot will be entrusted to the care of ' Head Mazdoor '. He will be expected to supervise and carry out the various cultural and tending operations in his plot. During the second year, as only cultural and tending operations will be carried out, one ' Head Mazdoor ' for every 100 acres only will be maintaied. During the third year Head Mazdoors will be employed at the rate of one for every 250 acres.

382. During the first two years one Forester will be placed in charge of each 500-acre coupe in each series. From the third year onwards, one Forest Guard and one Watcher will be placed in charge of each coupe of about 500 acres of cashew plantations and one Forester for every 1,000 acres of cashew plantations.

SECTION 6—OTHER REGULATIONS.

383. *Sale of produce.*—The cashew nut topes will normally be sold after they are five years old (i.e.), from the sixth year onwards, but they may be sold earlier and also if adequate quantity of nuts are formed. Each plot of 50 acres will be treated as unit and sold in open auction every year. The lease period will be six months commencing from the 1st January to 30th June of the year and the auctions will be held in the first week of December preceding the commencement of the lease.

384. The details of revenue anticipated are furnished in paragraph number 347.

385. *Pest control.*—If the plantations are infested with any of the diseases, proper remedial measures will be undertaken. A list of pests and the remedial measures for them are given in Appendix.

386. It is suggested that a 'Plant Pathologist' may be appointed and the necessary convenience of laboratory and field staff, given to him to combat the pests. This is essential in view of the large-scale plantations envisaged for regeneration in this working circle and as the District Forest Officer may not be fully equipped for the job on hand and may not find adequate time for this specialised work in addition to his multivarious duties.

387. *Fire protection.*—In coupes, where the existing growth has been completely uprooted throughout the area, the ground is covered with profuse grass and it may be a source of fire danger in the hot months. To minimise the incidence of fires in such cleared areas the following fire lines will be maintained :—

(i) along the outer priphery, inside the live thorn fence, a half chain belt, completely scraped of all vegetations; and

(ii) the 10 feet wide common boundary lines between the plots of 50 acres.

388 The above lines will be cleared before the end of January and will be maintained clear of all vegetation by the head mazdoors.

389. These fire protection operations will be carried out during the first three years only.

390. In coupes, in which all the growth has not been cleared and the intervening growth is allowed to remain, no fire-protection operations will be done.

391. *Soil conservation measures.*—Since the forest cover is clear felled, and uprooted, completely throughout the coupes under Kumri cultivation, and partially in strips in other areas, soil conservation measures are essential to minimise soil erosion. The following soil conservation measures are recommended :—

(i) Aligning the initial 33 feet apart planting lines along the contours taking into consideration the general contours of the country.

(ii) In coupes given for Kumri cultivation and in which complete clear felling and uprooted of forest growth has taken place construction of bunds at suitable intervals along the contours to prevent surface run-off. The bunds will be maintained intact for the first three years. In coupes where the intervening forest growth has been left uncut such growth will afford the necessary soil protection to the area.

(iii) In spite of the above operations if erosion sets in, the District Forest Officer will take up immediate anti-erosion measures such as construction of cheek-dam, gully-plugging, etc., to minimise further erosion.

392. *Demarcation.*—Plantations will be demarcated by planting stones, sowing the area and the year of planting at all prominent corners as well as the beginning and the end of the inspection paths, during the first year itself.

393. *Grazing.*—Plantations will be closed to grazing for three years including the year of formation.

394. *Statistics.*—Figures of cost of formation and yield should be accurately maintained.

395. *Fencing.*—Live thorn will be erected around the coupes by adopting method given in paragraph 458 in Chapter III, Part II.

396. *Cost of formation.*—The details of cost of formation per acre are furnished below :—

I. First year.

	RS.	NP.
(i) Survey and demarcation of outer periphery by cutting 10′ wide lines.	0	31
(ii) Demarcation of 50-acre bits by cutting 10′ wide lines	0	31
(iii) Clearing the growth 10′ wide as regeneration strips and uprooting of stumps and roots up to a depth of 6″ and wide 6′.	15	50
(iv) Raising a live thorn fence	1	50
(v) Forming a jeepable track within the regeneration area	1	00
(vi) Aligning and staking for pits	0	19
(vii) Forming saucers with a radius of 3′ having an inward slope of 3″ and digging one foot cube pit in the centre of the saucer.	4	00
(viii) Refilling of excavated soil in pits and forming one foot square mounds in pits.	0	50

I. First year—cont.

	RS.	NP.
(ix) Cost of seeds and their transport to site at the rate of 3 lb. per acre.	1	50
(x) Dibbling of seeds	0	13
(xi) Replacement of casualties, i.e., sowings by sowings (20 per cent) and sowing by basket plants (25 per cent.)	0	50
(xii) Weeding and scraping in September and December including December soil working and mulching in January-February.	4	50
(xiii) Pay of head mazdoor for one year at the rate of one per 50 acres with a daily wage of Re. 1.	7	20
(xiv) Raising a nursery for the basket plants	1	19
(xv) Cost of tools, construction of watchers' shed, fire tracing, etc.	1	67
Total ..	40	00

II Second year.

(i) Weeding and scrapping in May, September and December including the soil workings.	6	00
(ii) Pay of head mazdoor for one year at the rate of one per 100 acres with a daily wage of Re. 1.	3	60
(iii) Other expenses	0	40
Total ..	10	00

Total cost of formation per acre of cashew plantation is Rs. 50 per acre.

SECTION 7—CONTROL.

397. *Control.*—A control journal, control forms, plantation journal and ledger, nursery journal and ledger, record of works and deviation statement will be maintained for this working circle. The details of the forms to be maintained are furnished in Appendix XXIII and paragraph number 541.

CHAPTER III—WORKING PLAN FOR THE REHABILITATION WORKING CIRCLE.

SECTION I—GENERAL CONSTITUTION AND CHARACTER OF THE VEGETATION.

398. *General constitution.*—This working circle includes several of the ex-panchayat reserved forest areas which contain adequate depth of soil, and which are capable of being improved by regeneration techniques known at present.

399. *Character of vegetation.*—A full description of the forests has already been furnished in Chapter II, Part I. The forests included in this working circle cover all the different types of forests described therein.

SECTION 2—DIVISION OF AREA AND ANALYSIS OF CROP.

400. *Division of area.*—An area of 2520·3 acres has been prescribed for regeneration operations. The areas have been divided into requisite number of planting series, wherever necessary, under each regeneration technique and the details are furnished under each regeneration technique.

401. *Analysis of crop.*—All the reserved forests were stockmapped ocularly in general way to find out the most suitable regeneration technique to be followed :—The details with reference to each Reserved Forest are furnished in appendix.

SECTION 3—METHOD OF TREATMENT.

A. General.

402. *Special objects of management.*—The following are the special objects of management :—

(i) to convert the entire area of degraded forests into better type of fuel-*cum*-small timber forests in a short time as possible, by planting suitable tree species and to develop them to the maximum extent; and

(ii) to ensure the maximum net revenue obtainable on sustained yield basis by adoption of a suitable rotation and of such measures as would lead to maintainance and improvement of site quality.

403. *Measures to attain the special objects of management.*—To attain the above special objects of management it has been decided to treat the existing growing stock silviculturally, by prescribing measures suitable to their condition. In order to settle the proper technique, areas in which adequate number of active tree stumps, trees, pole crop, saplings or established seedlings sufficient to reclothe the forests, if given protection, occurred at approximately 25 feet to 30 feet intervals. Such areas may contain saleable tree growth The areas which contain saleable growth will be worked under coppice regeneration method by working them as fuel coupes and the resulting coppice growth will be assisted by artificial regeneration methods, wherever necessary, in order to get complete stocking of the area. (Method 'A'.) These areas which do not contain saleable growth but contain only immature growth will be tended and allowed to grow to full maturity. In these areas, compact blocks of and above 25 acres, which contain poor stocking of valuable species, i.e., useful trees may occur at more than 25 feet to 30 feet apart, will be artificially regenerated. (Method 'B'). In the rest of the areas, which contain poor stocking of valuable species, intensive artificial regeneration operations will be done. (Method C'). The artificial regeneration method adopted will be the one that is in vogue at the time of regenerating the area as the proper regeneration technique of the dry fuel forests is still in the process of development. The regenerated areas will be properly tended and looked after so that they may grow into plantations of valuable species which will yield the necessary timber, firewood, minor and other forest products on a sustained basis in perpetuity.

404. *Choice of species.*—The tree species that are indigenous to the locality, that are valuable as small timber and firewood and that can be grown easily will be used The species suggested in order of importance and utility are *Albizzia lebbeck, Dalbergia sissoo, Neem, Cashew, Albizzia amara, Cassia siamea, Pongamia glabra, Eucalyptus hybrid, Tamarindus indica, Acacia leucophloea, Acacia arabica and Acacia sundra.*

Other species, if found suitable, may also be used.

405. *Silvicultural system.*—Since different methods are adopted, to suit different localities, the details of silvicultural system adopted are furnished under each technique separately

406. *Conversion period.*—A conversion period of 10 to 30 years according to the regeneration technique followed will be adopted. It is anticipated to cover the entire area except the areas kept as reserves during this conversion period.

407. *Rotation.*—The question of rotation during the working plan period, is only of theoretical interest as the forests are under conversion. After conversion has been completed, probably a rotation of 30 years may be followed.

408. *Regulation of yield.*—Since the object of this working circle is to rehabilitate the degraded forests by suitable regeneration methods, the exploitation of these forests will be of secondary importance only. While equal annual regeneration areas have been laid out as far as possible no attempt has been made to secure equi-productive areas.

B. Regeneration methods.

409. *General.*—The treatments proposed are based on the stock-maps prepared by ocular estimate. While selecting areas for one or other of the treatment, the territorial staff will have the discretion to vary the treatment suggested according to practical convenience, as all treatments aim at the common object of rehabilitation of the forests.

410. *Seed collection.*—The District Forest Officer will decide the species that he proposes to regenerate from the list already furnished in paragraph according to the local conditions and make arrangements for their collection. As far as possible fresh seeds should be used and storing should be avoided. The collection of seeds will be undertaken during the year prior to that of regeneration. It is considered that one Madras Messure of husked seed will be sufficient for the entire regeneration operation for one acre. The collection of seeds for the regeneration operations may be based on the above estimate.

411. *Nursery.*—In case of Method 'A' regeneration areas, nursery stock for the entire area wil be raised as transplants will be used for stocking the area.

412. It is expected that under method 'C' probably about 60 per cent of the regeneration spots will require replacements by transplants during the north-east monsoon. If good quality viable seeds are used the percentage of transplants used may be less. The replacements in the second year may not exceed 40 per cent so, it is essential to raise nursery beds in April to stock the entire regeneration area. It is better to produce as many container plants as is practicable.

413. The species recommended for nursery are *Albizzia lebbek*, and *Dalbergia sissoo*. About $4\frac{1}{2}$ lb. of *Albizzia lebbek* husked seeds and $1\frac{1}{4}$ lb. of *Dalbergia sissoo* pods respectively will be required for a nursery bed of standard size. (40 feet by 4 feet by 1 foot). The nursery beds will be watered and raised about 6 to 9 months in advance of planting season.

Method 'A'—Areas which contain adequate stocking of valuable species which are saleable.

414. *Constitution and basis of selection.*—Areas which contain at 25 feet to 30 feet adequate number of active, tree stumps, trees, pole crop, saplings and established seedlings sufficient to reclothe the forests, if given protection, are included under this method. This method covers the forests situated in the plains and hills. The total area available is 1,942·9 acres and this has been formed into Kavarapettai series.

415. *Division into coupes.*—The series has been divided into 30 coupes. The coupes have been so formed as to avoid contiguous series of closed coupes near villages. The statement below gives the division of coupes and area :—

Kavarapettai Series.

Year of regeneration. (1)	*Coupe number.* (2)	*Name of reserved forest.* (3)	*Area in acres.* (4)
1956	I	Ugumudi Reserved Forest (part)	35·0
1957	II	Do.	33·0
1958	III	Nemalur Reserved Forest (part)	30·7
1959	IV	Do.	31·3
1960	V	Do.	32·0
1961	VI	Ugumudi Reserved Forest (part)	42·9
1962	VII	Do.	31·4
1963	VIII	Nemalur Reserved Forest (part)	32·1
1964	IX	Do.	29·8
1965	X	Do.	33·4
1966	XI	Ugumudi Reserved Forest (part)	41·1
1967	XII	Do.	37·4
1968	XIII	Nemalur Reserved Forest (part)	36·0
1969	XIV	Do.	37·7
1970	XV	Do.	35·2
1971	XVI	Ugumudi Reserved Forest (part)	38·5
1972	XVII	Nemalur Reserved Forest (part)	28·7
1973	XVIII	Do.	32·5
1974	XIX	Do.	35·8
1975	XX	Do.	33·8
1976	XXI	Ugumudi Reserved Forest (part)	41·4
1977	XXII	Nemalur Reserved Forest (part)	36·4
1978	XXIII	Do.	34·0
1979	XXIV	Do.	36·6
1980	XXV	Do.	33·3
1981	XXVI	Ugumudi Reserved Forest (part)	3[illegible]·0
1982	XXVII	Nemalur Reserved Forest (part)	38·6
1983	XXVIII	Do.	33·0
1984	XXIX	Do.	30·4
1985	XXX	Do.	32·9
		Total ..	1,042·9

416. *Yield.*—The forests are expected to yield about 2 tons fire wood per acre on the average.

417. *Method of executive fellings.*—One coupe will be taken up annually in the sequence given in paragraph number 415. The coupes will be surveyed and demarcated in October of the year prior to that of felling. The coupe will be sold in auction towards the end of the same year The purchaser of the coupe will be expected to coppice the trees carefully without damaging the stumps so that the stumps may coppice satisfactorily.

418. For purposes of sale, each coupe will be treated as a sale unit. The lease period will be eight months starting from the 1st January of the year of felling or less according to the area of the coupe.

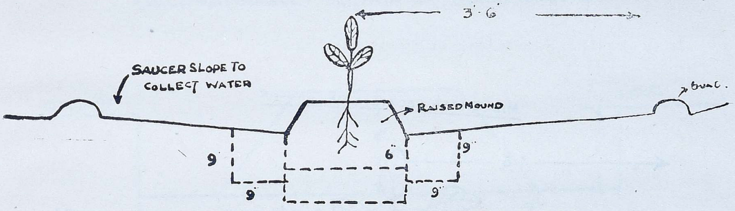
419. *Method of regeneration.*—In the year following the clear-felling of the coupe, the area will be regenerated by the 'Saucer' or 'sunken-mound' technique depending on the relative success achieved in the locality.

420. In September of the year of working, lines 6 feet wide will be cleared at 33 feet intervals in the area, taking into consideration the general topography of the ground.

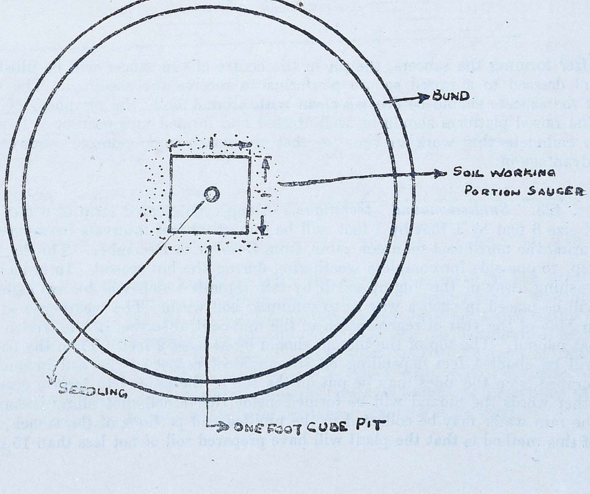
421. '*Saucer*' *technique.*—Along each 6 feet wide strip cut, staking 22 feet apart will be done to obtain stakes at an espacement of 33 feet by 22 feet. At each stake pits of size 1 foot by 1 foot by 1 foot will be dug before the end of the north-east monsoon, i.e., December and the dug-out soil allowed to weather during the hot season. If at any stake, there is an active stump or established seedling of valuable species, no pitting will be done.

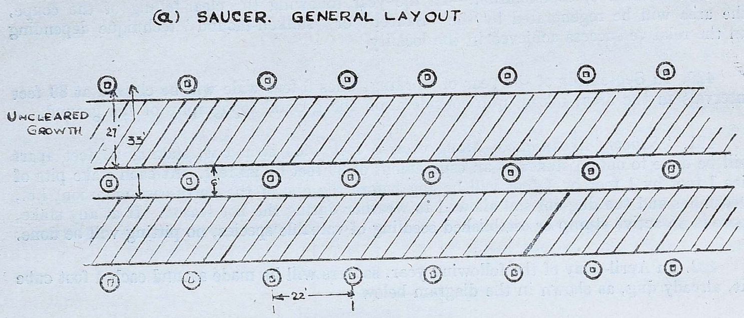
422. In April–May of the following year, saucers will be made around each 1 foot cube pit, already dug, as shown in the diagram below :—

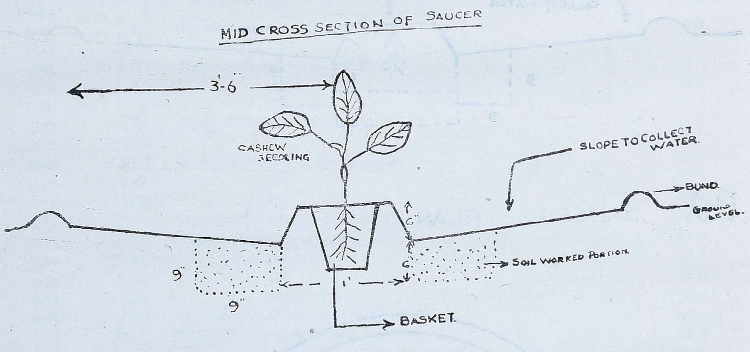
(c) SAUCER MID CROSS SECTION



(b). SAUCER. PLAN.





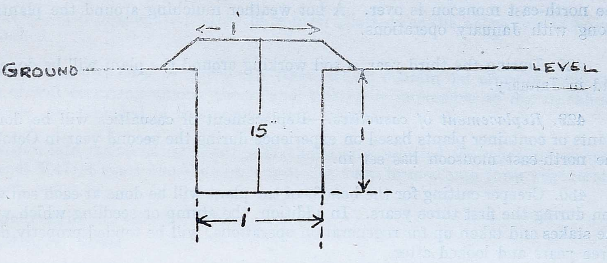


After forming the saucers, the pit in the centre of the saucer will be filled and the excess soil dressed to a raised square platforms to receive the seedling. The slanting surface of the saucers should be dressed clean with a bund along the periphery of the saucer spot. The raised platform should be well-dressed and formed into position. It is quite essential to complete this work in time so that the south-west monsoon showers can be taken advantage of.

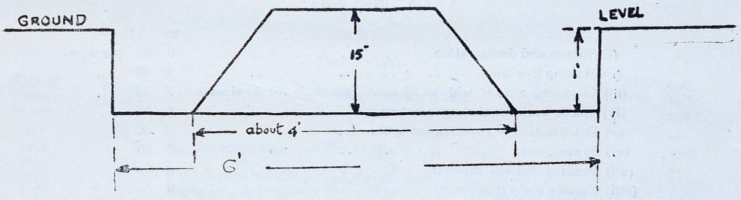
423. *'Sunken-mound' technique.*—Along each cleared strip of 6 feet width, trenches of size 6 feet by 1 foot by 1 foot will be dug at 22 feet intervals between their mid-points during the north-east monsoon rains, from October to December. The dug up earth will be kept to one side for complete weathering during the hot season. In order to minimize the washing away of the dug-up earth by rain, stones which will be available in this locality will be placed in such a way as to minimise soil wash. The weathered soil will be placed in May of the year of regeneration in the mid-central section of the trench to form a raised flat mound. The top of the mound should be at least 2 feet. Then the base of the mound will be about 4 feet depending on the angle of repose of the soil in question. Top soil scraped from the sides may be put on the top of the mound to form a good plant bed. In other words the mound will be formed inside the trench, not filling it completely, so that the rain water may be collected in the unfilled end portions of the trench. The advantage of this method is that the plant will have prepared soil of not less than 15 inches depth and

available moisture will be fully conserved and made readily to the plant. The diagrams below give the general lay-out, mid-cross-section and longitudinal section of the sunken mound described above :—

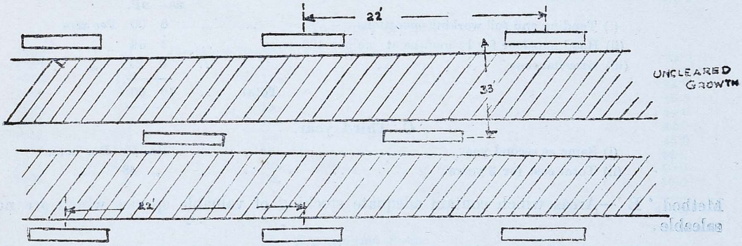
(c) MID SECTION OF SUNKEN MOUND



(b) LONGITUDINAL SECTION OF SUNKENMOUND



(a) GENERAL LAY OUT OF SUNKEN MOUND



424. *Planting.*—In order to catch up with the coppice regrowth of the area, only hospitalised transplants or container seedlings will be used for regeneration. Sowings will not be done. As soon as the north-east monsoon sets in and the ground is sufficiently moist, a hospitalised seedling will be normally planted in each mound. Replacement of casualties will be done twice or thrice when the ground is sufficiently wet till the end of December with container plants. This method is suggested to start with, but it is believed that container plants give better percentage if survival in areas of lower and precarious rainfall. After this is confirmed by further trials, only container plants will be used.

425. If there is sufficient rain in the south-west monsoon planting may be done at that time also. As the south-west monsoon is generally meagre, this may not be of annual occurrence.

426. *Weeding and tending.*—In December, a soil working around the plant will be done. In case of saucer, the soil working will be done around the raised one-foot platform to a width and depth of 9 inches and in the case of sunken-mound on the mound itself. In January–February, a hot weather mulching will be done around the plants.

427. During the second year, a soil working will be done in June–July during the south-west monsoon in September after the south-west monsoon is over and in January after the north-east monsoon is over. A hot weather mulching around the plants will be done along with January operations.

428. During the third year, a soil working around the plant will be done in September and in January.

429. *Replacement of casualties.*—Replacement of casualties will be done with transplants or container plants based on experience during the second year in October, as soon as the north-east monsoon has set in.

430. Creeper cutting for the benefit of the plant will be done at each soil working operation during the first three years. In addition, the stump or seedling which was found near the stakes and taken up for regeneration operations, will be tended properly during the first three years and looked after.

431. No other operations may be required beyond the third year. If found necessary, they may be carried out.

432. *Estimate of costs.*—A rough estimate of cost per acre for the 'Sunken-mound' or 'saucer' technique is given below :—

A. First year.

	RS.	NP.	
(i) Survey and demarcation	0	25	per acre.
(ii) Raising live-fence	1	50	,,
(iii) Cleanning lines 6′ wide at 2½ annas per chain for 20 chains.	3	13	,,
(iv) Earth work for the regeneration spot	5	50	
(v) Reformation of regeneration spots	2	00	
(vi) Sowing, etc.	1	50	
(vii) Tending and soil working	6	00	
(viii) Nursery costs (lumpsum)	0	50	
(ix) Head mazdoor for 12 months at one per 50 acres ..	7	31	
(x) Miscellaneous seeds, etc.	0	31	
Total ..	28	00	

B. Second year.

	RS.	NP.	
(i) Tending and soil working operations	6	00	Per acre
(ii) Head mazdoor for 12 months at one per 100 acres ..	3	69	,,
(iii) Miscellaneous	0	31	,,
Total ..	10	00	

C. Third year.

(i) Same as second year	Rs. 10	Per acre.
(ii) Total cost for 3 years	,, 48	,,

Method 'B'—Areas which contain adequate stocking of valuable species which are not saleable.

433. *General.*—No areas have been prescribed for regeneration by this method.

Method 'C'—Areas which contain inadequate stocking of valuable whether saleable or not.

434. *Constitution and basis of selection.*—All the forest areas in the plains and hills which contain sufficient depth of good soil for doing regeneration operations and which have not been taken up for regeneration under methods 'A' and 'B' are included for regeneration under this method. These forest areas do not contain at 25 feet to 30 feet apart adequate number of active tree stumps, trees, pole crop, saplings or established seedlings sufficient to reclothe the forests, but contain only sparse growth. In such areas,

if there is demand for kumri cultivation, kumri regeneration technique will be adopted. For other areas situated in the plains, ' sunken-mound ' or ' saucer ' technique will be adopted and for these on the hills with adequate soil depth ' trench and mound ' technique will be adopted. In hilly areas with pockets of soil scattered among boulders, making it impossible to dig trenches at regular intervals the ' trench and mound ' method will be suitably modified and adopted.

(1) *Kumri* regeneration technique and

(2) *' Saucer ' or ' sunken mound ' or ' French and mound ' regeneration technique.*

(3) *Hill-top and bouldry areas regeneration technique.*

435. *General.*—No regeneration areas have been allotted for the above two techniques under this method.

436. *Constitution and basis of selection.*—Areas which contain out crops of rocks with only pockets of soil occurring among them, and making it impossible to dig trenches at regular-intervals, are included in this regeneration method.

437. *Division into regeneration series.*—The total area selected for regeneration under this technique is 1,477·4 acres and the entire area has been formed into three regeneration series, as given below :—

(i) Poondi series.

(ii) Kadapperi series.

(iii) Kattupakkam series.

438. *Division into annual coupes.*—Each regeneration series has been divided into 10 coupes. The sequence of coupes has been so staggered as to avoid contiguous series of closed coupes near villages. The statements that follow give the details of the coupes formed under each regeneration series :—

1. Poondi Series.

1. *Poondi Series.*

Year of regeneration.	*Coupe number.*	*Name of reserved forest.*	*Area in acres.*
(1)	(2)	(3)	(4)
1956	I	Nayapakkam Reserved Forest (Part)	48·0
1957	II	do. do.	46·5
1958	III	Pul arambakkam Reserved Forest (Part)	43.5
1 59	IV	Nayapakkam Reserved Forest (Part)	48·0
1960	V	do. do.	47·0
1961	VI	Senjiagaram Reserved Forest (Part)	50·8
1962	VII	Nayapakkam Reserved Forest (Part)	46·0
1963	VIII	Pullaram akkam Reserved Forest (Part)	45·2
19 4	IX	Senjiagaram Reserved Forest (Part)	50·6
1965	X	Nayapakkam Reserved Forest (Part)	48·0
		Total ..	473·6

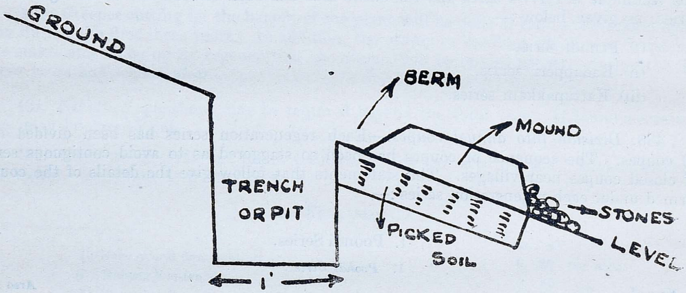
2. *Kadapperi Series.*

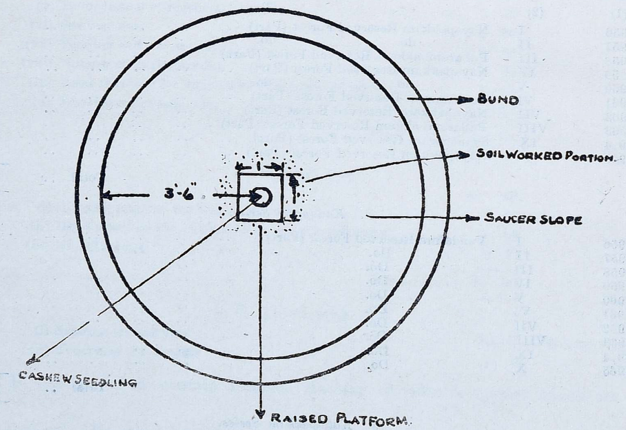
1956	I	Vandalure Reserved Forest (Part)	44·0
1957	II	Do.	44·0
1958	III	Do.	44·0
1959	IV	Do.	45·5
1960	V	Do.	44·0
1961	VI	Do.	44·0
1962	VII	Do.	45·0
1963	VIII	Do.	44·0
19 4	IX	Do.	50·0
1965	X	Do.	47·0
		Total ..	451·5

3. *Kattupakkam Series.*

1956	I	Sirukunram Reserved Forest (Part)	56·5
1957	II	Do.	59·7
1958	III	Do.	53·1
1959	IV	Do.	58·2
1960	V	Do.	53·7
1961	VI	Do.	55·2
1962	VII	Do.	53·1
1963	VIII	Do.	50·1
1964	IX	Do.	54·9
1965	X	Do.	57·8
		Total ..	552·3

439. *Method of regeneration.*—The annual regeneration area will be surveyed and demarcated on the ground in April of the year prior to the year of regeneration. In each regeneration area, lines 6 feet wide will be cut at 33 feet intervals taking into consideration the general topography of the ground. In these hilly areas, trench and mound technique suitably modified will be adopted. Along the 6 feet wide cut strip, trenches of size 6 feet by 1 inch by 1 foot will be dug in north-east monsoon of the year prior to the year of regeneration at 22 feet apart to get an espacement of 33 feet by 22 feet and the soil allowed to weather. The rocky nature of the country may not permit the digging of trenches of uniform size, 6 feet by 1 foot by 1 foot throughout the area. In such cases, smaller trenches at approximately 22 feet apart will be dug wherever possible. Where it is not possible to dig even such trenches, regeneration will be confined to the small pockets of soil found amidst the rocks. In these pockets soil will be prepared to a depth of at least 12 inches and spaced at 22 feet apart. The dug up soil will be heaped on the low hill side on the ground previously pick-axed. A berm of about 3 inches width will be left between the trench or pit and the heaped-up soil. This will help in stabilising the soil in the pick-axed portion and the mound. To minimize the washing away of the soil still further stones obtained from excavation of trench and those found nearby may be put on the lower side of the mound. The diagram below gives the details of the trench or pit and mound prepared as above :—





(b) PLAN OF SAUCER (NOT TO SCALE)

440. *Sowing.*—On the top of the mound, a few seeds of two or three species suitable for the soil in the locality, dibbled in June–July after the south-west monsoon sets in. In addition to other thorny species, *Anona squamosa* is also recommended as best suited for these localities. If the seeds do not germinate in about 15 days, seeds will be sown again. This operation will be repeated twice or thrice till the end of August.

441. *Weeding and tending operations.*—In September, adequate number of well-spaced vigorous plants will be selected for each mound and a soil working done around them. The rest of the seedlings in the mound will be pulled out. If any of the mounds do not contain adequate number of well-spaced seedlings, nursery transplants or container plant will be planted at the centre of the mound in October, after the north-east monsoon has set in.

442. Towards the end of December, the number of plants per mound may be reduced preferably by cutting the unwanted ones. The plants selected for retention will be the best among the existing ones, with healthy and vigorous growth. At the same time, a soil-working will be done around the retained plants. The number of plants to be left at each stage is left to the discretion of the District Forest Officer. Again in January–February, a hot weather mulching around the plant will be done.

443. During the second year, a soil working will be done in June–July, during the south-west monsoon, in September after the south-west monsoon is over and in January, after the noth-east is over. A hot weather mulching around the plant will be done along with the January operations.

444. During the third year, a soil working around the plant will be done in September and in January.

445. *Replacements of casualties.*—Replacement of casualties with transplants will be done during the second year in October as soon as the north-east monsoon has set in.

446. Creeper cutting to free the plant will be done at each soil working during the first three years.

447. No other tending operations may be required beyond the third year. If found necessary, they may be carried out.

448. *Estimate of costs.*—A rough estimate of the costs per acre is given below :—

A. *First year*—

		Peracre. RS.	NP.
1	Survey and demarcation	0	25
2	Raising live fence (lump sum)	1	50
3	Cleari g 6' wide lines	3	13
4	Earth work for trenches and pits (lump sum)	5	50
5	Reformation of trenches and mound	2	00
6	Sowing, etc.	1	50
7	Tending and soil working	6	00
8	Nursery costs	0	50
9	Head mazdoor for 12 months at one per 50 acres	7	31
10	Miscellaneous	0	31
	Total	28	00

Second year—

		RS.	NP.
(i)	Tending a d soil working operations	6	00
(ii)	Head mazdoor for 12 months at one per 100 acres	3	69
(iii)	Miscellaneous	0	31
	Total	10	00

Third year—

Same as the second year	10	00
The total cost of regeneration will be	48	00

449. *General.*—The regeneration techniques described in this chapter are all based on current experience. These will be followed till they are modified in the light of later experience on research. With experience, it may be possible to decrease the length of the trenches, increase their rain water storage capacity and arrive at the most suited technique of regenerating a quick growing species that is the best suited to the locality. The problem of quick aforestation of the low rainfall areas is still not completely settled through the present large scale experience has brought us very much nearer the solution.

SECTION C—SUBSIDIARY SILVICULTURAL REGULATIONS.

450. *Thinnings.*—Since the object is to create plantations that will yield small timber and firewood, and since the number of plants per acre, are 60, it is considered that no thinning will be required for these plantations.

Miscellaneous.—Seedlings and saplings of other valuable species of economic importance, if found within the coupes will be encouraged to come up. All sandal and other notified standard trees occurring within the coupe shall not be cut, but protected as standards.

SECTION 5—OTHER REGULATIONS.

451. *Care and maintenance.*—The regeneration areas of each year in each series will be divided into 50 acre plots and entrusted to the care of a 'head-mazdoor' in order to afford the necessary care and maintenance required. The 'head mazdoor' is expected to supervise and carry out the various cultural operations as creeper cutting, climber cutting, freeing the young seedlings of useful species in his plot with the help of necessary labour force. He is also expected to maintain the 6 feet wide planting strips throughout the year.

452. During the second and third year, as only cultural and tending operations will be carried out, one 'head mazdoor' for every 100 acres only will be maintained.

453. In method 'A' during the working of the coupe by contractors, the head mazdoors will not be engaged to supervise their work.

454. One Forester will be placed in charge of about 500 acres of regeneration area in each series, during the first 3 years. From the fourth year onwards, these areas will be protected just like other forests.

455. *Maintenance of old plantations.*—In the areas already regenerated with various species, no cultural and tending operations will be carried out.

456. *Statistics.*—The figures of cost of formation and yield should be accurately maintained.

457. *Grazing.*—The regeneration areas will be closed to grazing for 5 years. In order to avoid large blocks of contiguous regeneration areas near villages being closed to grazing, the coupes have been staggered as indicated below under the different methods.

Method 'A'.—[I, VI, XI, XVI, XXI, XXVI, II, VII, XII, XVII, XXII, XXVII, III, VIII, XIII, XVIII, XXIII, XXVIII, IV, IX, XIV, XIX, XXIV. XXIX, V, X, XV, XX, XXV, XXX.]

Method 'C'.—[I, IV, VII, X, II, V, VIII, III, VI, IX.]

272. The limits of the coupes laid out in the last Working Plan will be generally

458. *Fencing.*—In the rehabilitation scheme for the State barbed wire has been recommended for fencing; but the efforts of the department to get barbed wire which is still a controlled commodity, has been of little avail. So, it is prescribed that till barbed wire is secured, live thorn fence will be grown along the periphery by working the soil to a depth of nine inches along a 3 feet wide strip and sowing seeds of thorny species as *Acacia*, *Prosopis juliflora* and Zizyphus species at the commencement of the growing season. It is expected that these strips sown with thorny species will develop into good live thorn fence in course of time. This work will be carried out along with the regeneration operations of the year. The necessity for barbed wire fencing may be reviewed in 1959 as so far the regeneration operations have been carried out without the protection of barbed wires.

459. *Demarcation stones.*—The regeneration areas will be demarcated by planting stone slabs showing the year of formation and area in acres at the corners as well as the beginning and the end of the inspection paths.

SECTION 6.—CONTROL.

460. *Control.*—A control journal, control forms, plantation journal and ledger, nursery journal and ledger, record of works and Deviation statement will be maintained for this working circle. The details of the forms to be maintained are furnished in Appendix XXIII and paragraph 54.

CHAPTER IV—WORKING PLAN FOR THE FUEL WORKING CIRCLE.

SECTION 1—GENERAL CONSTITUTION AND CHARACTER OR VEGETATION.

461. *General constitution.*—The Fuel Working Circle consists of plains and hill forest areas of Reserved Forests which are reasonably well-stocked, which are accessible and in which exploitation is profitable. Steep-hill sides where the exploitation will be silviculturally undesirable and other poorly stocked areas, have been excluded.

462. *Character of vegetation.*—A detailed description of these forests has already been furnished in Chapter II, Part I. These forest areas fall under Champion's Types :—

(i) Carnatic evergreen forest—Group 6—Tropical dry evergreen forest;

(ii) Southern Cutch thorn forest—Group 5-a—southern thorn forest—Type C1;

(iii) Dry Tropical forest—Group-a—South Indian dry mixed deciduous Type C2 and their modifications.

SECTION 2—DIVISION OF AREA AND ANALYSIS OF CROP.

463. *Area and formation of fuel series.*—A total area of 20,644·2 acres have been selected for Working as fuel coupes. Sixteen felling series, as detailed below have been formed :—

A. Satyavedu range.—

1 Kambakkam.
2 Akkachampalayam.
3 Thondampattu.
4 Kadur.
5 Ardur.
6 Moppurpalli.
7 Ittupakkam.
Razugunta.
9 Satyavedu.

B. Trivellore range.—

1 Krishnaredeikona.
2 Nakkalakona.
3 Vellur.
4 Pelathukona.
5 Ramagiri.
6 Jerugulodu.
7 Peradam.

464. *Analysis of crop.*—No analysis of crop was done during this revision.

SECTION 3—METHOD OF TREATMENT.

465. *Special objects of management.*—The following are the special objects of management :—

(i) To work these forests in such a way that the growing stock therein is kept at the maximum productive capacity in perpetuity;

(ii) to meet the fuel needs of the village situated close to the forests, as far as possible, on a regular and sustained manner.

466. *Measures to attain the special objects of management.*—In order to obtain the above special objects of management, fuel coupes of convenient blocks will be formed and they will be worked regularly by sale in open auction every year. The lay out and the method of working of these fuel coupes have been prescribed after taking into consideration the rate of growth of the growing stock in these forests so that the exploitation of these forests in the form of fuel coupes can be continued in perpetuity.

467. *Silvicultural system.*—The system adopted will be simple coppice with the reservation of certain fruit yielding and other Minor Forest Produce yielding trees. Only healthy trees with well developed crowns and poles that are healthy and vigorously growing will be retained. Obviously, unsound diseased and overmature trees will not be retained.

468 *Felling cycle.*—The firewood from the forests is supplied mainly to Madras City and the demand is for billets up to 18 inches girth and faggots (sulli). The coppice regrowth is found to be vigorous and adequate and complete their height growth within the first few years after felling and stagnate afterwards. It would appear that this may call for a shorter felling cycle than the present felling cycle followed, 30 years. At present no experimental data regarding the rate of growing of the coppice shoots exists. As it is considered that the trees will attain the size of 18 inches girth during this period, the same rotation will be continued.

469. *Regulation of yield.*—The yield will be regulated by area.

470. *Calculation of yield.*—No fresh estimate of yield was done during the revision of this Working Plan. Based on the estimates of yield forecast in the 'Revised Working Plan' for the Nellore Forest Division by Sri M. H. Krishnaswamy, the annual yield for each series is forecast as below :—

Name of the series.	*Average annul cut in acres.*	*Average annual outturn per acre in tons.*	*Estimated average annual yield per coupe in tons.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)
	A. SATYAVEDU RANGE.			
1 Kambakkam	45	2·7	122	..
2 Akkachampalayam	50	3·0	150	..
3 Thondampattu .. .	49	2·8	137	..
4 Kadur	67	2·3	154	..
5 Ardur	43	2·6	112	..
6 Moppurpalli	50	2·7	135	..
7 Ittipakkam	40	3·8	152	..
8 Razugunta	40	3·2	128	..
9 Satyavedu	50	2·6	130	..
	B. TRIVELLORE RANGE.			
1 Krishnardedikona	43	3·7	159	..
2 Nakkalakona	19	3·0	57	..
3 Vellur	33	4·0	142	..
4 Pelathukona	38	3·2	122	..
5 Ramagiri	34	5·0	170	..
6 Jerugulodu	40	2·6	104	..
7 Peradam	47	2.8	122	..

SECTION 4—METHOD OF EXECUTING FELLING.

471. *Allotment of annual coupes.*—The area under each felling series is divided by the felling cycle to obtain the average annual cut and based on this, and the existence of natural features in the ground, each year's regeneration area is allotted as indicated below :—

Coupe number.		*Satyavedu series.*	*Peradam series.*	*Krishnareddi kona series.*	*Nakkalkona series.*
(1)		(2)	(3)	(4)	(5)
I	..	52·0	56·8	38·0	15·0
II	..	53.2	45·6	44 0	16·2
III	..	50·8	44·0	44·0	18·8
IV	..	40·0	44·0	41·2	32·2
V	..	60·0	44·0	40·0	22·0
VI	..	56·0	42·0	44·0	20·0
VII	..	40·4	28·8	33·2	20·0
VIII	..	42·0	52·8	48·0	28·0
IX	..	54·0	42·0	37·2	20·0
X	..	54 4	38·0	36·0	20·0
XI	..	48·0	44·0	38·8	28·8
XII	..	40·4	34·4	38·8	16·0
XIII	..	56·0	40·0	26·8	14·4
XIV	..	56·0	40 0	40·0	19·2
XV	..	70·0	48·0	46·8	18·0
XVI	..	34·8	48·0	56·0	16·0
XVII	..	42·8	33·6	53·6	18·4
XVIII	..	64·0	40·0	38·0	19·6
XIX	..	48·0	42·4	35·6	24·0
XX	..	62·0	32·0	51 2	15·2
XXI	..	56·0	59·6	60 0	20·0
XXII	..	47·2	53·2	36·0	24·0
XXIII	..	46·4	63·6	50·4	16·0
XXIV	..	38·8	56·0	74·0	18·8
XXV	..	44·0	60·0	50·0	20·4
XXVI	..	48·0	74·0	37·6	17·6
XXVII	..	48·8	45·6	34·0	16·4
XXVIII	..	57·6	50·4	48·0	13·6
XXIX	..	44·0	42.0	36.0	16·4
XXX	..	53·2	52·0	32·0	19·2
Total	..	1,508·8	1,406·8	1,289·2	583·4

Coupe number.		*Akkacham-palayam series.*	*Moppurpalli series.*	*Ittippakkam series.*	*Kazugunta series.*
(1)		(2)	(3)	(4)	(5)
I	..	44·0	48·0	37·2	40·0
II	..	48·0	48·00	43·2	48·0
III	..	40·0	58·2	32·8	31·2
IV	..	45·6	40·0	32·8	39·2
V	..	39·6	40·0	48·4	42·0
VI	..	46·4	40·0	44·0	45·6
VII	..	44·0	52·0	44·0	36·0
VIII	..	54·4	40·0	41·6	32·0
IX	..	47·6	58·0	46·0	24·0
X	..	34·0	48·0	44·0	30·4
XI	..	46·0	48·0	40·0	53·6
XII	..	39·2	50·8	30·4	37·6
XIII	..	39·6	44·0	29·6	40·8
XIV	..	44·0	51·6	36·0	45·8
XV	..	48·0	44·4	44·0	40·0
XVI	..	38·8	52·0	36·0	40·0
XVII	..	52·4	58·0	32·0	42·0
XVIII	..	47·6	38·8	58·8	48·8
XIX	..	50·0	62·8	52·8	46·0
XX	..	56·0	41·2	30·4	32·0
XXI	..	68·0	58·0	36.0	44·0
XXII	..	64·0	47·2	40·0	32·0
XXIII	..	54·4	56·0	40·0	44·0
XXIV	..	46·8	76·0	36·0	36·0
XXV	..	54·4	64·0	34·8	36·0
XXVI	..	60·0	42·8	50·0	40·0
XXVII	..	59·2	46·0	54·4	44·0
XXVIII	..	82·4	47·2	41·6	44·0
XXIV	..	56·0	52·0	34·6	40·0
XXX	..	44·0	60·0	42·8	43·2
Total	...	1,495·2	1,501·8	1,214·2	1,191·6

Coupe number. (1)	*Ardur series.* (2)	*Kambakkam series.* (3)	*Thondampatti series.* (4)	*Kadur series.* (5)
I ..	41·6	44·0	48·0	60·0
II ..	43·2	40·0	44·0	72·0
III ..	25·6	36·0	52·0	70·0
IV ..	48·0	47·2	52·0	60·0
V ..	45·6	38·8	40·0	56·0
VI ..	48·4	36·0	41·6	73·6
VII ..	36·0	60·0	32·0	61·6
VIII ..	32·8	54·0	48·0	54·0
IX ..	37·2	53·6	53·6	64·0
X ..	31·6	32·0	80·0	56·0
XI ..	76·0	46·0	56·0	56·8
XII ..	43·6	56·0	52·0	64·0
XIII ..	36·0	24·0	48·0	56·0
XIV ..	44·0	36·0	50·0	70·4
XV ..	44·0	52·0	44·0	77·6
XVI ..	29·6	44·0	56.0	70.0
XVII ..	25·2	49·6	48·0	80·4
XVIII ..	30·0	36·0	28·0	74.0
XIX ..	42·8	48·0	68·0	88·0
XX ..	59·2	48·0	44·0	120·0
XXI ..	42·4	44·0	56·0	74·0
XXII ..	57·6	48·0	44·0	40·4
XXIII ..	44·8	56·0	44·0	94·8
XXIV ..	60·0	40·0	52·0	50·8
XXV ..	44·8	48·0	40·0	52·0
XXVI ..	37·2	46·4	56·0	84·0
XXVII ..	45·6	42·0	40·0	56·0
XXVIII ..	40·4	53·6	52·0	58·0
XXIX ..	36·0	48·0	49·6	60·0
XXX ..	53·2	52·0	52·0	50·0
Total ..	1,282·4	1,359·2	1,470·8	2,004·4

Coupe number. (1)	*Vellur series.* (2)	*Palatukona series.* (3)	*Ramagiri series.* (4)	*Jeruhulodu series.* (5)
I ..	36·0	40·0	34·0	34·0
II ..	16·0	36·0	28·0	52·0
III ..	20·0	44·8	32·0	48·0
IV ..	20.4	48·0	28·0	28·0
V ..	37·2	36·0	22·0	40·0
VI ..	25·6	28·0	35·6	34·0
VII ..	26·6	32·0	35·6	34·0
VIII ..	33·6	20·0	36·0	38·0
IX ..	35·6	1[illegible]·0	38·4	51·2
X ..	24·0	48·0	36·0	44·0
XI ..	28·0	38·0	14·4	40·0
XII ..	40·4	20·0	32·0	24·0
XIII ..	37·6	32·0	35·6	29.2
XIV ..	36·0	44·0	38·8	37·6
XV ..	48·0	31·2	30·0	37·6
XVI ..	36·0	44·0	36·8	37·6
XVII ..	36·0	44·0	27·6	32.0
XVIII ..	19·6	42·0	33·6	41·6
XIX ..	35·6	46·0	50·4	46·4
XX ..	35·6	52·0	48·8	44·8
XXI ..	36·0	48·0	46·8	52·0
XXII ..	64·0	44·0	30·0	40·0
XXIII ..	26·0	36·0	24·8	42·0
XXIV ..	50·0	48·0	18·4	36.0
XXV ..	21·2	32·4	24·0	40·8
XXVI ..	26·0	44·0	52·0	49·6
XXVII ..	28·0	24·0	34·8	52·0
XXVIII ..	30·8	28.0	30·8	32·0
XXIX ..	34·0	35·6	34·8	28·0
XXX ..	59·2	44·0	41·2	38·0
Total ..	1,006·0	1,128·8	1,010·4	1,191·2

472. The limits of the coupes laid out in the last Working Plan will be generally continued except in a few cases wherein some changes have been introduced to suit the convenience of management. The coupes that are due for working in 1956–57 in each series are given below :—

Name of series. (1)	*Coupe number.* (2)
A Satyavedu Range.	
1 Kambakkam	X
2 Akkachampalayam	VIII
3 Thondampattu	V
4 Kadur	XI
5 Ardur	IX
6 Moppurpalli	IX
7 Ittipakkam	II
8 Razugunta	III
9 Satyavedu	X

Name of series. (1)	Corupe number. (2)
B. Trivellore Range.	
1 Krishnareddikona	XXVIII
2 Nakkalakona	XV
3 Vellur	XII
4 Pelathukona	XI
5 Ramagiri	XI
6 Jerugulodu	VIII
7 Peradam	X

NOTE.—The column (2) above does not include the arrear coupes that will be put up for sale in 1956–57.

473. One coupe in each felling series will be offered for selling in each year in the sequence indicated in the tabular statement of fellings. The coupes have not been allotted to definite years. If for any reason, the annual coupes cannot be exploited in full and remain unsold, they may be sold in the following year along with the coupe intended for that year. This does not involve a deviation, but the full reasons for not selling the coupes will be recorded in the control book.

474. *Demarcation and survey.*—The annual coupe will be demarcated on the ground by 6 feet wide lines, in December of the year prior to that of exploitation. The coupe will be surveyed , plotted and the area computed to the nearest acre. The annual coupe will be divided into two strips by strip lines of 6 feet width. The material obtained from clearing the lines will be handed over to the purchaser of the coupe after recovering the felling charges.

475. *Agency of exploitation.*—The coupes will be generally sold in public auction, taking each coupe as a separate unit of lease. If a coupe cannot be sold in any year, it will not be worked departmentally or by permits or by any other system.

476. The period of lease will depend on the area of the annual coupe, as given below :—

(i) for fuel coupes of area less than 20 acres, four months from the date of execution of the agreement;

(ii) for fuel coupes of area more than 20 acres and less than 60 acres, eight months from the date of execution of the agreement;

(iii) for fuel coupes of area more than 60 acres, from the 1st April or the date of execution of the agreement whichever is later up to 31st of March of the following year.

477. *Felling rules.*—(i) Fellings will be done strip by strip. Permission to fell the next strip will be given only after the fellings in the strip have been completed to the satisfaction of the Range Officer.

(ii) Trees marked for retention and seedlings and saplings of valuable species not required by the contractor will be left unfelled.

(iii) The trees shall be cut close to the ground level without severing the bark from the woody portion of the stool. Sharp felling implements shall be used.

(iv) The brushwood of the felled trees should not be allowed to remain in the coupe in such a manner as to impede the growth of the coppice shoots from the felled stools.

(v) All fellings in the coupe will be done by the mazdoors of the contractor only and during the fellings, the contractor or his agent will supervise the work.

478. *Coupe arrears.*—In the event of any portion of a coupe remaining unfelled on the termination of a lease, such portion will be resurveyed and reserved trees re-enumerated as soon as possible after the lease area has been taken over from lessee. The District Forest Officer will put up the arrear area for sale as soon as possible thereafter allowing such voidah as he considers necessary to enable the contractor to fell and remove the produce on it. In case, however, the District Forest Officer is satisefid that the arrear portion contains very poor growth or that it is inexpedient or unremunerative to fell it, he may depart from this rule, and the area may remain unfelled. Full reasons for such a step will be recorded in the Control Book.

479. *Disposal of felled material.*—All small timber which may be felled shall be hammer-marked by the beat Forest Guard before its removal from the coupe.

Section 5—Subsidiary Regulations.

480. *Cutting thorny growth and other usefless tree species.*—The useless tree species and other thorny growth not required by the contractor need not be cut and they will be allowed to remain as soil cover in the forests. Further, the cutting of thorny growth causes the production of numerous coppice shoots, making the forests infested with more thorny growth than before.

481. *Demarcation of worked coupes.*—After the work in the coupe has been completed, the corners of the coupe will be demarcated with stones, which will indicate the coupe number, year of felling and area.

482. *Grazing.*—The felled coupes will be closed to grazing for four years including the year of felling. If cattle paths exist in the worked coupes, they will be demarcated with a margin of about half a chain width on either side and the path, excluded from the closure. Cutting and removal of grass from the ' closed-' coupes may be allowed free of cost.

483. *Fire protection.*—No special fire-protection measures are considered necessary to be carried out.

484. *Statistics.*—Statement giving the details of firewood, small timber and brush-wood removed from the coupe during the month will be furnished regularly to the Range Officer.

485. *Small timber.*—The coupe contractors will be bound by agreement to supply in the coupe small timber and fuel to the ryots for their bona fide agricultural and domestic requirements at the rates fixed by the District Forest Officer.

Section 6—Control.

486. *Control.*—A control book, a control journal, a record of works, a control map and a deviation statement will be maintained according to the instruction furnished in Appendix XXIXI and paragraph number 540.

CHAPTER V—WORKING PLAN FOR THE PROTECTION WORKING CIRCLE.

Section 1—General constitution, character of vegetation and area.

487. *General constitution.*—This Working Circle comprises the portion of the reserved forests not included in any of the Working Circle, except Minor Forest Produce and Grazing Working Circles. This includes areas that have been kept in reserve for future regeneration operations, areas that are unsuitable for regeneration operations as Kallar, gravelley, swamy or steep areas and others.

488. *Character of vegetation.*—The various kinds of vegetational types that occur in this Working Circle are already described in Chapter II, Part I.

489. *Area.*—The area included in this Working Circle is 103,561.71 acres. The details of area for each reserved forest and range are given below :—

Name of reserved forest. (1)	Area. (2)
A. Satyavedu Range.	
Class —	
	ACS.
1. Kadur and extension	296·0
2. Ardur and extension	104·8
3. Kambakkam and entension	11,461·8
4. Satyavedu	1,404·3
Class III—	
5. Ugumudi and extension	356·6
6. Irugulam and extension	226·6
7. Nemalur and extension	23·2
Total ..	13,873·9

Name of reserved forest. (1)	Area. (2)
B. Trivellore Range.	
Class I—	ACS.
1 Ambakkam	4,556·5
2 Nagalapuram	5,359·6
3 Allikuli and extension	4,677·4
Class III—	
4 Siruvada	372·4
5 Palavakkam and extension	2,537·6
6 Manali	23·0
7 Senjiagram	223·6
8 Erumaivettipalayam	184·0
9 Mailapur and extension	601·3
10 Vembedu	1,024·2
11 Nayapakkam and extension	717·5
Total	20,284·0
C. Tambaram Range.	
1 Mannur	102·4
2 Pudupper	353·9
3 Nallur	230 7
4 Erumaiyur	162·5
5 Pulikoradu	184 8
6 Tambaram	197·4
7 Nanmangalam and extension	494·0
8 Maganiyam	461·7
9 Maduraipakkam	429·9
10 Perumbakkam	87·2
11 Vadakkupattu and extension	212·8
12 Vattambakkam and extension	774·0
13 Gudalur and extension	845·5
14 Vandalur and extension	501·3
15 Kumili and extension	645·6
16 Unamanjeri	434·9
Total	6,107·6
D. Kelambakkam Range.	
1 Mambakkam and extension	180·7
2 Kulathur and extension	1,856·0
3 Kalvoy	67·5
4 Kayar and extension	720·0
5 Taiyur and extension	1,000·3
6 Sirukunram and extension	448·1
7 Anjur and extension	1,233·7
8 Vallam and extension	1,750·1
9 Senkuram and extension	272 3
10 Tiruttari and extension	164·3
Total	7,693·0

ABSTRACT.

A Satyavedu Range	13,873·9
B Trivellore Range	20,284 0
C Tambaram Range	6,107·6
D Kelambakkam Range	7,693·0
Total	47,958·5
Area of ex zamin and other forests (vide paragraph number 38)	55,603·21
Grant Total	103,561·71

SECTION 2—METHOD OF TREATMENT.

490. *General.*—No operations are prescribed for the areas included in this Working Circle. If any regeneration operations not contemplated in this Working Plan are to be taken up, the necessary areas suitable for the purpose may be selected from the areas included in this Working Circle.

491. *Fodder and Pasture Development Scheme.*—A new forest division for the improvement of fodder and pasture in Chingleput district has been formed in G.O. Ms. No. 1761, Agriculture, dated 16th July 1956. It has been proposed to develop fodder and pasture in Chingleput district over an area of about 15,000 acres of reserved forests during the Five-Year Plan period. As the areas for this scheme have not yet been finalized, the details of the areas selected in each reserved forest is not known. The areas for this scheme will be generally selected in each reserved forests is not known. The areas for this scheme will be generally selected from the areas included in this Working Circle.

SECTION 3—CONTROL.

492. *Control.*—A control journal, control book, nursery ledger and journal, plantation ledger and journal, a record of works and a deviation statement will be maintained for the areas, if any, taken up for regeneration operations as given in Appendix XXIII and paragraph number 540. The control records need not be maintained, if no areas are taken up for regeneration operations.

493. For the portions of the reserved forests, regenerated under the Fodder and Pasture Scheme, the relevant details will be obtained from the District Forest Officer in charge and the control records posted up-to-date.

CHAPTER VI—WORKING PLAN FOR THE MINOR FOREST PRODUCE WORKING CIRCLE.

SECTION 1—GENERAL CONSTITUTION, CHARACTER OF VEGETATION AND AREA.

494. *Constitution.*—This overlapping working circle includes all the reserved forests and unreserved lands under the control of the Forest Department.

495. *Character of vegetation.*—The character of vegetation has been fully described in Chapter II, Part I.

496. *Area.*—This working circle extends over the entire division.

497. *Kinds of produce.*—The details regarding the various kinds of minor forest produce collected are given below :—

Name of produce. (1)	*Botanical name of the plant from which collected.* (2)	*Part of the plant that is collected.* (3)
Avaram bark	*Cassia auriculata*	Bark
Konnai bark	*Cassia fistula*	Do.
Tamarind	*Tamarindus indica*	Fruit
Mango	*Mangifera indica*	Do.
Wood apple	*Ferronia elephantum*	Do.
Sarapappu	*Buchanania latifolia*	Do.
Kunkudu	*Sapindus emarginatus*	Do
Kadukkai	*Terminalia chebula*	Do.
Nellikoi	*Phyllanthus emblica*	Do.
Elandai	*Zizuphus jujuba*	Do.
Nagai	*Eugenia jambolana*	Do.
Pungam	*Pongamia glabra*	Do.
Neem	*Azadirachta indica*	Do.
Date	*Phoenix sylvestris*	Do.
Palmyrah	*Borassus flabellifer*	Fruit and leaves.
Broomstick grass	*Andropogan species*	Aerial portion.
Honey and Bees wax	..	..
Cashew nut	*Anacardium occidentale*	Fruit.
Ettikoi	*Strychnos nuxvomica*	Do.
Kalakoi	*Carrisa carandus*	Do.
Coconut	*Cocos nucifera*	Fruit, leaves and fronds.

498. As the forests covered by this Working Circle are mainly scrub type, the above minor forest produce occur only in small quantities.

SECTION 2—METHOD OF TREATMENT.

499. *Agency of exploitation.*—Each range will be formed into a unit for purposes of sale and collection of minor forest product except the konnai and avaram barks of Satyavedu and Trivelore ranges which will be sold as separate leases. The lease period will be 'fasli' year, i.e., from 1st July to 30th June of the following year. The leases will be sold in February. The existing system of exploitation through contractors will continue. Where there is an exclusive demand for a particular species or a set of species of minor forest produce, the District Forest Officer may sell that as a separate minor forest produce leases the range being the unit for that species or set of species. These species will be excluded from the General Minor Forest Produce lease for each range.

SECTION 3—OTHER REGULATIONS.

500. *Rough stone quarries.*—There exist rough stone quarries at various places in each range and fresh quarries will be opened as and when necessary with the permission of the District Forest Officer. The rental charged for quarrying will be decided by the District Forest Officer, according to the orders in vogue at the time.

501. *Statistics.*—The contractors shall furnish monthly accounts of minor produce collection made by them to the Range Officer concerned.

502. *Control.*—A control journal and a record of works shall be maintained as given in Appendix XXIII and paragraph number 540.

CHAPTER VII—WORKING PLAN FOR THE GRAZING WORKING CIRCLE.

SECTION 1—GENERAL CONSTITUTION, CHARACTER OF VEGETATION AND AREA.

503. *Constitution.*—The grazing Working Circle extends over all the reserved forests and unreserves of the division except a few areas which may be closed to grazing for certain specified reasons by the District Forest Officer.

504. *Character of vegetation.*—The various types of forests met with are described in Chapter II, Part I.

505. *Areas.*—This Working Circle extends over the forests of the entire division, except such areas which may be excluded by the District Forest Officer from time to time.

SECTION 2—METHOD OF TREATMENT.

506. *Regulation of grazing.*—In order to regulate the grazing of cattle in the forests, annual permits will be issued by the department subject to the conditions in force from time to time.

507. The grazing fees for the various kinds of cattle are given below :—

	Fees per head.
	nP.
Buffalo	50
Cow	25
Sheep	12

The above grazing fees are uniform for all the forests in this division.

508. The grazing year will be from 1st July to 30th June of the following year.

SECTION 3—OTHER REGULATIONS.

509. *Areas closed to grazing.*—The areas closed to grazing will be notified annually by the District Forest Officer in the local District Gazette. The following areas will be closed to grazing :—

(i) All regeneration areas during the prescribed period of closure, experimental areas and similar areas;

(ii) Areas which the District Forest Officer may temporarily close as a punitive measure for unauthorized burning.

(iii) Areas closed for any other valid reasons.

510. *Kancha system.*—The merits and demerits of the kancha system and the difficulties encountered in enforcing the various provisions of the system have been dealt with in detail in Chapter V, Part I. Due to the various difficulties narrated, this system of grazing will not be followed. The classification of areas into kanchas and their demarcation will cease to exist during the operative period of this working plan.

511. *Goats.*—Since most of the forests in this division are of scrub type, particular care should be taken to keep the goats away from the reserved forests. Goats on no account should be allowed to enter the forests and if found, the owner or the grazier will be dealt with in the most severe manner by imposing the maximum allowable fine warranted by the circumstances of the case.

512. *Control.*—A control journal and a record of works will be maintained according to the details furnished in Appendix XXIII and paragraph 540.

CHAPTER VIII—ESTABLISHMENT AND LABOUR.

SECTION 1—ESTABLISHMENT.

513. *Executive staff.*—The present strength of foresters, forest guards and watchers in the division is adequate. For carrying out the various regeneration operations, the foresters and forest guards will be employed on the scale indicated after obtaining the necessary sanction.

514. *Ministerial staff.*—The existing staff is adequate.

SECTION 2—LABOUR.

515. *Availability of labour.*—To start with, during the first few years, there may be some difficulty to secure the right type of necessary labour for the various regeneration operations proposed in the Working Plan. But once it is known to the people that the mazdoors will get regular work, that difficulty may disappear. The staggering of the regeneration areas has also been done only with a view to secure adequate labour for the regeneration operations. As the reserved forests also lie in a scattered manner among the various villages, it is considered that adequate labour for the regeneration operations envisaged in the Working Plan will be available.

CHAPTER IX—MISCELLANEOUS REGULATIONS (SUGGESTED AND PRESCRIBED).

SECTION 1—FIRE PROTECTION.

516. *Fire protection.*—Fires occur rarely in these forests except in the Kambakkam and Nagalapuram hills, where also it is not a serious problem. The presence of evergreen shrubs like *Memecylon edule*, *Moba buxifolia* and *Webera corymbosa* and the absence of grass during the hot weather afford a natural immunity to these forests against fire. Hence no elaborate fire protection operations are called for except in certain vulnerable areas for which provisions are made in the paragraphs that follow.

517. In Cashew Working Circle, the areas which are completely cleared off all forest growth, become vulnerable to fire due to the presence of grass in hot season. In paragraphs 381 to 390 the necessary fire protection operations have already been prescribed.

518. In Satyavedu Range in Kambakkam Reserved Forest, fire tracing is done along the district boundary for 30 feet width by cutting 2 guide lines of 10 feet width on either side and burning the middle of 10 feet width over a distance of 7 miles 6 furlongs.

SECTION 2—COMPARTMENTS.

519. *Compartments.*—Even though the compartment lines were recognisable in the field, the compartment histories were not maintained after the Satyavedu Range was transferred to the Chingleput Forest Division. The old compartment histories are also not available with the District Forest Officer and they appear to have remained with the Nellore Forest Division of the Andhra State. As the forests in the other ranges have not been constituted into compartments the management of the forests by compartments will be discontinued in the old Satyavedu Range, i.e., portions of the present Satyavedu and Trivellore Ranges also. So, the compartment lines will not be maintained.

SECTION 3—RESERVE BOUNDARY AND MAPS.

520. *Boundary verification.*—The boundaries of the ex-panchayat reserved forests have not been verified after they were resumed by the department. The position with regard to the enclosures, rights of ways and other rights and concessions are not known. It is likely encroachments may also exist in those reserved forests. The position with regard to Class I reserved forests though may be better, needs periodical verification. So, it is considered necessary that the boundaries should be verified by a special staff and necessary steps taken to remedy the defects noticed. This work will take about 2 years for two sets of subordinates, each consisting of one Range Officer and three Foresters to complete the work. This work will be taken up during 1959–60 and 1960–61.

521. *Maintenance of boundaries.*—The reserved forest boundaries are generally maintained by the subordinates by clearing the growth. In exceptional cases, they may be maintained after getting the estimates sanctioned. The Inter-District Boundary between the Chittoor and Chingleput districts in the Trivellore Range is cleared to a width of 30 feet for a distance of 4 miles in Nagalapuram Reserved Forest and 8 miles in Allikuli Reserved Forest.

522. *Positions with reference to maps and area.*—The position with reference to maps is far from satisfactory. While large-scale outlines of the reserved forests were invariably available, contour maps were not available in most cases. In some cases, even large-scale outlines had to be prepared from 1 inch to 1 mile, Survey of India sheet, using pantographs. This results in not obtaining all the smaller details of the contours and boundaries of the reserved forests in full relief. Since only ocular stock-mapping was carried out, a map without contours was of great handicap and resulted in the preparation of not very accurate stock-maps. Since uncut maps were not available in most cases, this also brought in some error while tracing them. Further after these forests were taken over by the department, no verification of the boundaries has been done. In a few cases where encroachments were suspected, the District Forest Officer has been informed for taking suitable action. All these difficulties and errors have been avoided as far as possible, in the preparation of the final coupe maps. The coupe areas have only been computed using a planimeter and have not been actually surveyed in the field. So, the coupes laid out and their areas indicated, will in general, approximate to those given in the working plan. But, when the Special Range Officers and his staff provided for the rectification of the boundaries and preparation of maps in the previous paragraph, completes their work, most of these discrepancies will disappear.

523. *Maps.*—The following maps are supplied along with this working plan for reference :—

(i) Management map—1 inch = 4 miles scale map showing the various working circles and the reserved forests.

(ii) Coupe maps—8 inches = 1 mile or 4 inches 1 mile large scale maps showing the details of coupes, felling series and other details of the reserved forests.

SECTION 4—BUILDINGS.

524. *Existing buildings.*—The existing buildings will be maintained in a state of good repair.

525. The rest-houses at Satyavedu and Nagalapuram require urgent repairs to the flooring and roofing. The cost of these repairs will be about Rs. 2,000 and it is suggested that this work may be done in 1960-61.

526. The cost of maintenance of the other buildings will be about Rs. 2,100 per year.

527. *New construction.*—Only some subordinates in Satyavedu and Trivellore Ranges have been provided with departmental buildings as residence and several have not yet been provided for. The necessity for providing proper accommodation for the subordinates and for housing the offices needs no special emphasis.

528. The details of residential and office accommodation required for the entire executive staff of the division are given below :—

Designation of the officer.	*Residential number and rate.*	*Total.*	*Office number and rate.*	*Total.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)	(6)
	RS.	RS.	RS.	RS.	
1 District Forest Officer.	1 @ 30,000	30,000	1 @ 35,000	35,000	..
2 Range Officers ..	3 @ 12,000	36,000	4 @ 10,000	40,000	Range Officer, Satyavedu, has already got quarters.
3 Foresters	17 @ 7,000	1,19,000	..	..	..
4 Forest Guards ..	32 @ 5,000	1,60,000	..	—	3 Forest Guards have quarters at Kambakkam.
5 Reserve Watchers ..	32 @ 4,000	1,28,000	..	..	3 Watchers have quarters at Kambakkam.
	Total ..	4,73,000		75,000	

529. Thus the total cost comes to be Rs. 5,48,000. The strength of the staff for the above calculation has been taken from Chapter IV, Part I of this Working Plan. Accommodation for the ministerial and other staff of the division may be provided for in the next working plan period.

530. It is suggested that an annual expenditure of about Rs. 80,000 from 1959–60 onwards till the end of the working plan period may be incurred for the construction of the buildings mentioned in paragraph number 528. It is left to the discretion of the District Forest Officer to fix the priority in the construction of the buildings from year to year.

531. *Wells.*—The cost of annual maintenance of the existing wells will be about Rs. 100 on the average. No construction of new wells is proposed.

Section 5—Roads.

532. *Existing roads.*—The details of the existing roads and bridle paths maintained by the department are given in Appendix XVIII. The total length of the roads maintained by the department comes to be 54 miles and that of bridle paths, 7 miles. The roads will be maintained annually at an average cost of Rs. 100 per mile length and the bridle path, at a cost of Rs. 10 per mile. The total expenditure comes to be about Rs. 6,000.

533. *New construction.*—The large-scale regeneration operations envisaged in this working plan may call for the construction of several new approach roads from the main roads to the reseved forests. It is expected that no large net work of roads other than these may be required, as the reserved forests in which these regeneration operations have been prescribed, are situated in the plains and are well connected by the roads maintained by the Highways Department.

534. The average annual regeneration area for the working plan period being about 2,000 acres, the length of the fair weather roads laid out may be about 4 miles on the average. At the rate of Rs. 1,000 per mile length of the road, and Rs. 10,000 for the annual maintenance for the 10 years the total amount required will be Rs. 50,000, i.e., an annual expenditure of Rs. 5,000.

Section 6—Ex-zamin and Other Forests.

535. *Ex-zamin and other areas.*—The details of the ex-zamin and other forests in this division are given in paragraph 3. Even though the department is looking after these forests, they have not yet been declared as reserved forests under section 16 of the Madras Forest Act V of 1882. The preparations for publishing the section 4 notification under the Madras Forest Act are under way. It is suggested that early steps should be taken to declare these forests as reserved forests as expeditiously as possible.

536. No regeneration operations or other works are prescribed in these forest areas They will be kept as reserves for future regeneration operations.

Section 7—Miscellaneous.

537. *Areas occupied by military authorities.*—During the last World War when the Class III reserved forests were under panchayat management, the military authorities occupied the Alamadi Reserved Forest, Thandari Reserved Forests, Mittanamalai Reserved Forest, Koyilpadugai Reserved Forest and Tirumalaivoyal Reserved Forest and their extensions. After the war was over, the military authorities released portions of the reserved forests which were not required by them. The Government in G.O No. 1784, Development, dated 2nd April 1949, ordered the release of 55·00 acres of Alamadi Reserved Forest and the area was taken charge by the department on 1st August 1949. Another 973 acres were released to the department in November 1953. The entire reserved forest of 1,028 acres was again ordered to be handed over to the Animal Husbandry Department, for locating the 'Salvage Farm for Dry Cows' in G.O. Ms. No. 1096, Agriculture, dated 26th April 1956.

538. Certain areas of the other four reserved forests under occupation were also released by the military authortiies. The Government in their Memorandum No. 135267/C IV-52-16, Agriculture, dated 28th April 1954, communicated in Board Proceedings Rt. No. 2716, dated 4th June 1954, ordered that these released areas should be maintained by the Revenue Department until the entire portion of the reserved forests is released by the military authorities and then finally handed over to the forest department. It is suggested that the District Forest Officer should keep careful watch over the areas released by the military authorities, and so resume charge of them at the earliest opportunity lest they may be assigned for some other purpose.

539. *Manure leaf removal.*—The various concessions afforded by the Government in the removal of green manure leaf by the ryots have been described in paragraph number 179. The manure leaf removal is quite pernicious to the trees, as they cannot thrive and grow, if they are divested of their leaves, which manufacture food for them. The forests of our State occur in areas of low rainfall and their recovery from such onslaughts as manure leaf removal is necessarily slow. Repeated hackings for manure leaf will ultimately kill the trees which will mean the utter ruination of our forests. So, no prescriptions regarding their removal are being made and it will be governed by the orders issued by the Government from time to time.

SECTION 8—CONTROL.

540. *Control.*—The maintenance of the various control records, ledgers and journals for each working circle in loose sheet file is prescribed. The details of the skeleton forms are given in Appendix XXIII and the details of the control records to be maintained for each working circle is given below :—

I. Cashew Working Circle and Rehabilitation Working Circle.

1 Control book.
2 Plantation journal and ledger.
3 Nursery journal and ledger.
4 Record of works.
5 Control journal.
6 Deviation statement.
7 Control map.

II. Fuel Working Circle.

1 Control book.
2 Record of works.
3 Control journal.
4 Deviation statement.
5 Control map.

III. Protection Working Circle, Grazing Working Circle and Miscellaneous Regulations.

1 Control journal.
2 Record of works.
3 Deviation statement.
4 Control map.

NOTE.—If any regeneration operations are done in the areas included in Protection Working Circle or Miscellaneous Regulations the same control records as those prescribed for the Cashew Working Circle will be maintained for these areas also, as given above.

IV. Minor forest produce worknig circle.

1 Control book.
2 Control journal.
3 Record of works.
4 Deviation statement.
5 Control map.

541. *Control books.*—The forms prescribed under this head are intended for controlling the principal exploitation operations in each Working Circle. Similar control forms have been devised for the regeneration and cultural operations.

542. *Record of works.*—The various minor operation for which no special forms were prescribed will be entered in this form. This form will not repeat the information already given in other forms.

543. *Plantation journal and ledger.*—These will be maintained during the first three years of the plantations or till the time the plantations are established.

544. *Control journal.*—This is the place where the District Forest Officer will record his observation with regard to the working of the prescriptions in the various working circles and offer his suggestions, if any. The information furnished in the other control forms will not be repeated here.

545. *Control map.*—One set of large scale maps 8 inches or 4 inches to 1 mile will be maintained by correctly posting the details of the areas regenerated under each working circle.

546. *Deviation statement.*—This will be maintained separately for each working circle.

CHAPTER X—FINANCIAL FORECAST.

SECTION 1—REVENUE AND EXPENDITURE.

547. A forecast of the revenue and expenditure for this division is attempted in the chapter. The final picture that emerges out is one of a favourably disposed surplus. This is mainly due to the high price that is obtaining for the cashew nut and the yield that is anticipated from the cashew plantations. Thus, it can be seen that the economics of this division is closely locked up with the yield from the cashew plantations and the ruling market rate for cashewnuts.

548. The annual surplus has been indicated as Rs. 2,22,669 for this devision. In a sense, this does not represent the true position and it is only an average for the working plan period of 10 years, as the cashew plantations will bring in revenue only during the latter half of the working plan period. So, in the first five years the expenditure will be mounting up and during the next five years, the revenue will be rising up.

549. The details of revenue and expenditure are worked out below :—

Details of Revenue and Expenditure.

(*a*) Revenue.

Serial number and details of items.	*Rate.*	*Amount to the nearest rupee.*	*Working Plan—Paragraph number.*
(1)	(2)	(3)	(4)
I. Cashew Working Circle.			
1 Sale of Cashew fruits	Lump sum.	51,00,000	349
II. Rehabilitation Working Circle.			
1 Sale of Regeneration Coupes under Method 'A' ..	334·6 Acres at Rs. 30 per acre.	10,038	417
III. Fuel Working Circle.			
1 Sale of fuel coupes	20,760 tons at 10 per ton.	2,07,600	471
IV. Minor Forest Produce Working Circle.			
1 Sale of Minor Forest Produce in Ranges	Rs.250 annually for 10 years.	2,500	Based on 1957-58 revenue.
V. Grazing Working Circle.			
1 Sale of Grazing permits	Lump sum.	19,674	Based on 1957–58 actuals.
Miscellaneous Items.			
1 Drift, waifwood and confiscated produce		837	Based on 1957–58 (actuals)
2 Management of ex-zamin areas		26,150	Do.
3 Fines and forfeitures		1,790	Do.
4 Rents		2,650	Do.
5 Other sources		9,140	Do.
	Total revenue ..	53,80,379	

(*b*) Expenditure.

Serial number and details of items. (1)	*Rate.* (2)	*Amount to the nearest rupee.* (3)	*Working Plan —Paragraph number.* (4)
	I. Cashew Working Circle.		
1 Raising cashew plantation ..	16,785 acres at Rs. 50 per acre.	8,39,250	
2 Maintenance of special establishment—			
(*a*) Head mazdoor for every 250 acres in third year.	16,785 acres at Rs. 1·44 per acre.	24,170	
(*b*) Forester for every 500 acres for the first two years.	16,785 acres at Rs. 4·80 per acre.	80,568	
(*c*) Forest Guard and Watcher for every 500 acres and one Forester for every 1,000 acres from the 3rd year onwards.	Pay of Forester Rs. 100. Forest Guard Rs. 55 and Watcher Rs. 45.	3,60,000	
3 Planting demarcation stones ..	Rs. 100 per year for five years.	500	
4 Plant protection staff	Rs. 1,000 per year for ten years.	10,000	Lumpsum
	II. Rehabilitation Working Circle.		
1 Raising plantations under treatment 'A'	271·4 acres at Rs. 48. 29·8 acres at Rs 38 and Rs. 33·4 acres Rs. 28.	15,095	
2 Raising plantations under Method 'C'	1,169·1 acres at Rs. 48 155·5 acres and at Rs. 38 and 152·8 acres at Rs. 28 per acre.	66,294	
3 Maintenance of special establishment	1 Forester for eight years 1 Foreste for four years and at Rs. 1,200 per year	14,400	
4 Planting of demarcation stones ..	Rs. 200 per year for ten years.	2,000	
	III. Fuel Working Circle.		
1 Demarcation and survey	Rs. 400 per year for ten years.	4,000	
2 Planting coupe stones	Rs. 800 per year for ten years.	8,000	
	IV. Miscellaneous Regulations.		
1 Fire tracing	Rs. 250 per year for ten years.	2,500	
2 Boundary verification	Rs. 1,000 per month for 2 years.	25,000	
3 Maintenance of boundaries ..	Rs. 100 per month for ten years.	12,000	
4 Buildings—			
(*a*) Special repairs	Lumpsum	2,000	
(*b*) Maintenance of old buildings	Rs. 21,000 per year for ten years.	21,000	
(*c*) New construction	Lump sum	5,71,000	
5 Repairs to wells	Rs. 100 per year for ten years.	1,000	
6 Repairs to roads	Rs. 600 per year for ten years.	60,000	
7 New road construction	Rs. 5,000 per year for ten years.	50,000	
	Total Expenditure ..	21,67,777	
Expenditure on the etablishment of the District Forest Officer for ten years.		9,30,350	Based on 1957–58 actuals.
Expenditure on the establishment towards direction charges for ten years		88,560	Based on 1/7 of the 1956–57 actuals.
	Total ..	31,87,287	

	RS.
Estimated Revenu	53,80,397
Estimated expenditure	31,87,287
Estimated surplus for ten years ..	21,93,110
Surplus anticipated every year ..	2,19,311

SECTION 2—COST OF THE WORKING PLAN.

550. The cost of preparing this working plan is Rs. 16,047 and the details are furnished below :—

Particulars. (1)	*Amount.* (2) RS.	nP.
1 Conservancy and Works	782	06
2 Pay of Officers	8,820	00
3 Pay of establishment	11,769	80
4 Dearness allowance	6,444	73
5 Travelling allowance	10,151	21
6 Other compensatory allowances	2,103	25
7 Contingencies	3 672	74
Total ..	43,743	79
Proportionate direction charges ..	20,443	40
Grand Total ..	64,187	19

551. The above expenditure was incurred for the preparation of three Working Plans and three schemes. If the work involved in the preparation of the schemes is considered as equivalent to that of one working plan, the proportional cost of preparation of this working plan comes to be.—

$$\frac{64,187/19}{4} = 16,046/80 \text{ or Rs. } 16,047.$$

552. As the total area of working plan division is 1,49,840 acres, the cost works out to Rs. 0·11 per acre.

CHAPTER XI—SUMMARY OF PRESCRIPTION.

553. A summary of the prescriptions made in Part II is furnished below :—

	Paragraph number.
CHAPTER I—BASIS OF PROPOSALS.	
1. *Objects of management.*—These are to protect and to rehabilitate the ex-panchayat forests by suitable methods of regeneration of cashew, casuarina and other miscellaneous fuel species, to regulate the supply of small timber firewood, grazing and other forest products to meet at least partially the needs of the local population and to protect and conserve the water regime of the hill forests.	318
2. *Measure to secure the objects.*—The details of the various methods adopted have been furnished.	319
3. *Working circles.*—Six working circles have been constituted. Details of the working circles constituted are given.	320
4. *Period of the plan.*—Ten years from the 1st of April 1956 to the 31st of March 1965.	321
CHAPTER II—WORKING PLAN FOR THE CASHEW WORKING CIRCLE.	
1. *General constitution and character of vegetation.*—Details of areas constituted and the nature of vegetation found there are furnished.	322—323
2. *Planting series.*—Six complete and two incomplete series covering over an area of 16,785 acres have been constituted.	324
3. *Special objects.*—There are to plant up the available area during the five years of the Second Five-Year Plan.	326
4. *Silviculture of cashew.*—Silvicultural details relating to cashew are furnished.	329—340
5. *Silvicultural system.*—Clear felling in strips followed by concentrated artificial regeneration with cashew is the system prescribed.	341
6. *Rotation.*—A tentative rotation of 30 years is prescribed.	342
7. *Yield.*—A forecast of 500 lb. of nuts per acre from the 6th to the 10th year and 1,000 lb. from the 11th year has been made.	343—348
8. *Selection of areas.*—Details of suitable areas have been discussed.	349—351
9. *Table of annual regeneration areas.*—Details are furnished.	352—353
10. *Preparation of site.*—Division of the regeneration area into 50 (fifty) acres blocks clearing 10 feet wide strips at 33 feet intervals from centre to centre and the formation of saucer spots at 16½ feet intervals along the cleared strips in stages before June of the year of regeneration have been prescribed.	354—357
11. *Planting.*—After the ground is sufficiently moist, dibbling of seeds up to the end of September and beating up of casualties with container plants during north-east monsoon have been prescribed.	358—356
12. *Seed collection.*—The necessity for proper selection of mother trees and collection of good viable seeds have been stressed.	360—365
13. *Nursery.*—A nursery of container plants under shade has been prescribed to be raised about a month before the actual planting in the field. Watering regularly has been prescribed.	366—370
14. *Kumri cultivation.*—If there is demand, areas can be leased out for kumri cultivation.	371

	Paragraph number.
15. *Replacing casualties.*—This has been prescribed to be done during the North-East monsoon only.	372
16. *Weeding.*—In September and December of the first year and in May, September and December of the second year, weeding to keep the saucer spots clean of weeds have been prescribed. Mulching during the hot season for the first two years has been prescribed. Weeding during the third and fourth years has been left to the discretion of the District Forest Officer.	373—377
17. *Thinnings.*—During the third year, thinnings may be done, if considered necessary, by removing the alternate plants on the planted strip.	378—379
18. *Clearing intervening growth.*—This will be done to the extent necessary, if the growth interferes the cashew tree.	380
19. *Care and maintenance.*—One head mazdoor for 50 acres during the first year and for 100 acres during the second year, will be maintained to supervise the works.	381—382
In addition, during the first two years one forester for every 500 acres and from the third year onwards, one forester for every 1,000 acres and one forest guard and watcher for every 500 acres will be maintained.	
20. *Sale of produce.*—The right to remove cashew nuts has been prescribed to be sold from the sixth year or earlier. Lease units will be 50 acres with six months voidah for removal of produce.	383—384
21. *Pest control.*—The appointment of a Plant Pathologist to control the diseases and pests has been suggested.	385—386
22. *Fire-protection.*— In areas completely cleared of all growth only fire protection by clearing lines all around the blocks and the regeneration areas is prescribed.	387—390
23. *Soil conservation measures.*—These are prescribed to be done according to the intensity of soil erosion in the area.	391
24. *Demarcation.*—Planting of stones bearing the details of the regeneration area is prescribed.	392
25. *Grazing.*—Closure to grazing for three years is prescribed.	393
26. *Fencing.*—Raising of a live fence of thorny fuel species all around the regeneration area is prescribed.	395
27. *Cost of formation.*—Details of cost of formation per acre are given.	396
28. *Control records.*—The maintenance of a control journal ,control forms, plantation journal and ledger, nursery journal and ledger, Record of Works and Deviation Statement prescribed.	397

CHAPTER III—WORKING PLAN FOR THE REHABILITATION WORKING CIRCLE.

1. *Constitution.*—All areas of the ex-panchayat Reserved Forests which are capable of being regenerated are included.	398—399
2. *Area.*--An area of 2,520·3 acres have been distributed under the various regeneration techniques.	400
3. *Special objects of management.*—These are to convert the areas included in this Working Circle into fuel-*cum*-small timber forests in as short a time as possible by planting trees and to work them to obtain the maximum net revenue on a sustained yield basis.	402
4. *Measures to attain the objects.*—In order to attain the above objects, the areas were classified according to the regeneration techniques to be followed as described below.—	403

(i) areas in which adequate number of active trees stumps, trees, pole crop, saplings or established seedling occur :—

(*a*) if the growth is saleable, the area will be regenerated by the Method ' B '.

(*b*) If the growth is not saleable, the area will be regenerated by Method ' B '.

(ii) Areas others than (i) above will be regenerated by Method ' C '.

5. *Choice of species.*—Fuel species will be used. 404

		Paragraph number.
6.	*Conversion period.*—A period varying from 10 to 30 years is prescribed.	406
7.	*Rotation.*—A tentative rotation of 30 years is fixed.	407
8.	*Seed collection.*—Adequate quantities of seeds are to be collected by the District Forest Officer.	410
9.	*Nursery.*—Details for raising nursery beds adequate to meet the needs are discussed. Methods of raising nursery beds of *Albizzia lebbek* and *Dalbergia sissoo* have been furnished.	411—413

(*a*) Method ' A '.

10.	*Area.*—An area of 1,042·9 acres has been constituted into one series of 30 coupes.	414
11.	*Division into coupes.*—The details of annual regeneration areas for the whole rotation have been given.	415
12.	*Fellings.*—Sale of one coupe each year with lease period according to area one year before the year of regeneration was prescribed.	417—418
13.	*Regeneration.*—Clearing of 6 feet wide strips at 33 feet apart from centre to centre and along each cleared strip at 22 feet intervals, regeneration will be done by the ' saucer ' or ' sunken mound ' technique, if no active stump or established seedling is found there.	419—420
(*a*)	*Saucer technique.*—Saucers of 3 feet radius with an inward slope to the centre where an one foot cube pit has been dug and filled up with earth weathered for some time for planting the seedling will be the basis for this technique.	421—422
(*b*)	*Sunken mound.*—Trenches of size 6 feet by 1 foot by 1 foot will be dug and the dug out soil, after proper weathering will be formed into a mound inside the trench with a base length of 4 feet and height, 15 inches for receiving the seedling. The one foot gap in the trench on either side of the mound will serve as water traps and conserve moisture.	423
14.	*Planting.*—During the north-east monsoon, after sufficient rains had fallen, a hospitalised transplant or container plant will be planted. Till December, in the north-east monsoon the casualties will be beaten up by container plants twice or thrice.	424—425
15.	*Weeding and tending.*—A soil working in December in the first year, in June-July, September and January in the second year and in September and January in the third year are prescribed. Hot-weather mulching in the hot season during the first two years is also prescribed. The stemp or seedling selected for regeneration will be properly tended during the first three years.	426—428
16.	*Replacement of casualties.*—This will be done during October in the second year also with transplants or container plants.	429—431
17.	*Estimate of costs.*—Details of cost per acre of raising these plantations are furnished.	432

(*b*) Method B.

18.	*General.*—No areas have been prescribed under this method.	433

(*c*) Method ' C '.

19.	*General.*—No areas have been prescribed under the ' kumri regeneration technique ' and ' saucer, or sunken-mound or Trench and mound regeneration techiques '. Three regeneration series covering 1,477·4 acres of hilly areas have been constituted under the 'Hill tops and bouldery areas regeneration techique '.	435—438
20.	*Preparation of site.*—Clearing of six feet wide strips at 33 feet intervals centre to centre along the contours digging of trenches 6 feet by 1 foot by 1 foot at 22 feet intervals along the cleared strips and the formation of mounds with the dug-up soil after properly weathering it, on the low hill side leaving a berm between the trench and mound are prescribed.	439
21.	*Sowing.*—Sowing seeds of fuel species and *Anona squamosa* on the mounds in the south-west monsoon and till the end of August to obtain good stocking are prescribed.	440

	Paragraph number.
22. *Weeding and Tending.*—In the first year, in September, the number of seedling per mound will be reduced to a few and a soil working done around them. Casualties will be beaten up in the north-east monsoon in October with nursery transplant or container plant. A further reduction in the number of plants to be retained may be done in December. In the second year, soil working in June-July, September and January will be done. During the hot weather in the first and second years, mulching around the retained plants will be done. In the third year, in September and in January, a soil working around the plants will be done. Replacement of casualties will be done in October in the north-east monsoon. Beyond the third year, weedings if found necessary, will be carried out by the District Forest Officer.	441—447
23. *Estimate of costs.*—The details of cost of regeneration per acre are given.	448—
24. *Thinnings.*—No thinnings are prescribed.	450—
25. *Care and maintenance.*—During the first year, one head mazdoor for 50 acres and during the second and third years, one head mazdoor for every 100 acres will be maintained. During the first three years, one forester will be in charge of every 500 acres of regeneration area.	451—454
26. *Old plantations.*—No cultural or tending operations will be done in the older plantations.	455—
27. *Grazing.*—Regeneration areas will be closed to grazing for 5 years. Staggering of the regeneration areas in order to avoid contiguous block of closed coupes in the manner given will be done.	457—
28. *Fencing.*—Till barbed wire is made available, live fence will be grown along the periphery of the regeneration areas by working soil to a depth of 9 inches and width of 3 feet and sowing seeds of thorny fuel species.	458—
29. *Demarcation.*—Planting of demarcation stones at prominent places in the regeneration area is prescribed.	459—
30. *Control.*—Maintenance of a control journal, control forms, plantation journal and ledger, nursery journal and ledger, Record of Works and Deviation Statement is prescribed.	460—

CHAPTER IV—WORKING PLAN FOR THE FUEL WORKING CIRCLE.

1. *Constitution.*—Plains and hill forests containing saleable growth have been constituted under this Working Circle. A total areas of 20,644·2 acres included in this working circle have been formed into 16 fuel felling series.	461—464
2. *Special objects.*—These are to work the forests in a regular and sustained manner to supply firewood to the neighbouring towns and to keep them at the maximum productive capacity in perpetuity.	465—
3. *Measures to attain them.*—Suitable fuel felling series have been formed.	466—
4. *Silvicultural system.*—Simple coppice system with the reservation of certain trees will be followed.	467—
5. *Felling cycle.*—Thirty years will be adopted as the felling cycle.	468—
6. *Yield.*—The yield will be regulated by area. An estimation of the yield per acre for each of the fuel series is done.	569—470
7. *Table of annual coupes.*—Annual coupes for the whole rotation have been laid out and the number of the coupe worked in 1956-57 has been given in order to maintain continuity of working.	471—473
8. *Demarcation.*—The coupes will be demarcated by 6 feet wide lines.	474—
9. *Exploitation.*—The coupes will be sold in open auction and the period of lease will depend on the coupe area.	475—476
10. *Felling Rules.*—Fellings, strip by strip, retention of standards, cutting trees close to the ground level with sharp instruments, removal of brushwood hampering coppice growth and supervision of the felling work by the purchaser are prescribed.	477—
11. *Coupe arrears.*—The unfelled portion of the coupes will be sold afresh or left as such according to the condition of the standing growth. This will be decided by the District Forest Officer.	478—

		Paragraph number.
12.	*Cutting unwanted material.*—This is not obligatory on the part of the purchaser.	480—
13.	*Demarcation stones.*—These will be planted at the prominent corners of the coupe.	481—
14.	*Grazing.*—Felled coupes are closed to grazing for 4 years.	482—
15.	*Small timber.*—These will be sold to bona fide agriculturists at definite rates and the removals will be controlled by beat forest guards by affixing their hammer marks.	485—
16.	*Control.*—The maintenance of a control book, a control journal, Record of works, deviation statement and a control map is prescribed.	486—

CHAPTER V—WORKING PLAN FOR THE PROTECTION WORKING CIRCLE.

1.	*Constitution.*—Portions of the reserved forests not included in any of the working circles except the overlapping working circles are included in this Working Circle. The total area included is 12,2247,79 acres. The details for each Reserved Forest are furnished.	487—489
2.	*Method of treatment.*—These areas will be merely protected and will serve as reserves for future regeneration works.	490—
3.	*Fodder and pasture division.*—The areas regenerated in this division will be sent to the District Forest Officer for incorporation in his control maps.	491—
4.	*Control.*—A control journal, control book, Record of Works, Nursery ledger and Journal plantation and Journal ledger and a Deviation statement will be maintained for all the areas taken up for regeneration operations only.	492—493

CHAPTER VI—WORKING PLAN FOR THE MINOR FOREST PRODUCE WORKING CIRCLE.

1.	*Constitution.*—The entire area of the division is included in this Working Circle.	494—496
2.	*Kinds of produce.*—The inportant minor forest produce of the division are given.	497—498
3.	*Method of treatment.*—Each range minor forest produce is formed into a unit of sale, except the Konnai and Avaram barks of Satyavedu and Trivellore Ranges which are formed into separate leases. If there is demand for any other produce, they will be formed into fresh units of sale and sold.	499—
4.	*Roughstone quarries.*—These will be opened or closed by the District Forest Officer according to demand.	500—
5.	*Control.*—The maintenance of a control journal and a record of works are prescribed.	502—

CHAPTER VII—WORKING PLAN FOR THE GRAZING WORKING CIRCLE.

1	*Constitution.*—The entire area of the division except certain areas closed to grazing by the District Forest Officer from time to time are included.	503—505
2.	*Method of treatment.*—Grazing permits at fixed rates are sold annually for buffalo, cow and sheep.	506—508
3.	*Areas closed to grazing.*—The details of the areas that will be closed to grazing are given.	509—
4.	*Kancha system.*—It will not be followed.	510—
5	*Goats.*—These will not be allowed to graze in the forests.	511—
6.	*Control.*—A contorl book, a control journal and a record of works will be maintained.	512—

CHAPTER VIII—ESTABLISHMENT AND LABOUR.

1.	*Establishment.*—The Executive staff will be employed for the various regeneration works according to the specified scale. They are considered adequate.	513—514
2.	*Labour.*—By suitably staggering the regeneration operations in the various areas, the labour problem can be solved. There is no dearth for labour now.	515—

Paragraph number.

CHAPTER IX—MISCELLANEOUS REGULATION (SUGGESTED AND PRESCRIBED).

1. *Fire protection.*—Fire tracing of the district boundary in Kambakkam Reserved Forest and around the cashew plantations in which the intervening growth has been cleared has been prescribed in other areas, in view of the evergreen under-growth, fire tracing is considered unnecessary. 516—518

2. *Compartments.*—These will not be maintained. 519—

3. *Boundary verification.*—This will be done by a special staff for 2 years. 520—

4. *Maintenance of boundaries.*—These will be maintained. 521—

5. *Maps.*—Details of maps supplied are given. 523—

6. *Buildings.*—The maintenance of the existing buildings in a good state of repair and a programme of building construction are prescribed. 524—530

7. *Wells.*—The maintenance of the existing wells is prescribed. 531—

8. *Roads.*—The maintenance of the existing roads in a good state of repair and a programme of new road construction are prescribed. 532—534

9. *Ex-zamin and other forests.*—Early reservation of these forests has been stressed. 535—536

10. *Areas occupied by military authorities.*—Details regarding the areas occupied and their present position are indicated. 537—538

11. *Manure leaf removal.*—This will be controlled by the Government orders issued from time to time. 539—

12. *Control.*—The details of the control records to be maintained for each Working Circle and the nature and importance of each control record are indicated. 540—546

CHAPTER X—FINANCIAL FORECAST.

1. *Revenue and expenditure.*—Details of average revenue and expenditure are given. On an average a surplus of Rs. 21,931·1 is expected. 547—549

2. *Cost of the working plan.*—Details of the cost of Working Plan are given. The cost per acre works out to be 11 naye paise per acre. 550—552

CHAPTER XI—SUMMARY PRESCRIPTIONS.

1. *Summary of prescriptions.*—A summary of the prescriptions made in Part II of the Working Plan is given. 553—

APPENDIX I.

List of trees, shrubs, herbs and others.

Botanical name.	*Tamil name.*
Abrus precatorius	Kundumani.
Acacia arabica	Karuvelam.
Acacia intsia	Indu.
Acacia latronum	Anaimullu, Kakkodai.
Acacia leucophloea	Velvelam, Sarai.
Acacia sundra	Karungali.
Adina cordifolia	Manjakadambai.
Aegle marmelos	Vilvamaram.
Agave americana	Kathalai.
Albizzia amara	Thurinji.
Alangium lamarckii	Alingi.
Albizzia lebbeck	Vagai.
Albizzia odoratissima	Karuvagai.
Anacardium occidentale	Munthri.
Anngeissus latifolia	Namai.
Anona squamosa	Seethapalam.
Asparagus racemosus	Thanuttukodi.
Atlantia monophylla	Kattu elimichai.
Azadirachta indica	Veppam.
Balsamodendron berrgii	Mulkiluvai.
Bambusa arundinacea	Perumungil.
Bassia latifolia	Illuppai maram.
Bauhinia malabarica	Vellathi.
Bauhinia purpurea	Mandarai.
Bauhinia racemosa	Athi.
Borassus flabellifer	Panamaram.
Bridelia retusa	Mulvengai.
Buchanania latifolia	Saraiparuppu.
Butea monosperma	Elaiporasu.
Calotropis gigantea	Erukku.
Canthium didymum	Nekkini.
Canthium parviflorum	Mullukarai.
Capparis sepiaria	Kattukathiri.
Carallia integerrimma	Andimiriam.
Carissa spinarum	Sirukila.
Cassia auriculata	Avaram.
Cassia fistula	Konnai.
Cassia siamea	Ponavarai.
Cassia montana	Malai avaram.
Casuarina equisetifolia	Savukku.
Chloroxylon swietenia	Porasu.
Cleistanthus collinus	Oduvan, Odugu.
Cocos nucifera	Thennaimaram.
Crataeva religiosa	Mavalingam.
Dalbergia lanceolaria	Patchalai.
Dalbergia paniculata	Porapatchlai.
Daemia extensa	Sindalkodi.
Dendrocalamus strictus	Sirumoongil.
Dichrostachys cinerea	Vadathalai.
Dillenia pentagyna	Naithekku.
Diospyros chloroxylon	Karuvakkanai.
Dodonea viscosa	Virali.
Elacodendron glaucum	Kanniramaram.
Erythrina Indica	Muruku.
Erythrina suberosa	Mul murukku.
Erythroxylon monogynum	Sembulichan.
Eugenia jambolana	Nagai.
Eugenia alternifolia	..
Euphorbia antiquorum	Kalli.
Euphorbia tirucalli	Tirucalli.
Excoecaria agallocha	Thillai.
Feronia elephantum	Vilamaram.
Ficus bengalensis	Ala.
Ficus glomerata	Athimaram.
Ficus hispida	Chonna Athi.
Ficus religiosa	Arasu.
Flacourtia ramontchi	Kothuvela.
Flacourtia sepiaria	Sothukala.
Fluggea leucopyrus	Vepulam.
Gardenia latifolia	Kambil.
Gerdenia turgida	..
Gmelina asiatica	Vellakumil.
Gymnosporia montana	Kattangi
Gyrocarpus americanus	Thanaku.
Hardwickia binata	Achamaram.
Hemidesmus indicus	Nannari.
Holarrhena antidysenterica	Eukkalaipalai or Karupalai.
Hugonia mystax	Motirakodi.
Ixora parviflora	Sulundu
Jatropha curcas	Kattamanakku.
Loranthus longiforus	Pulluruvi.
Leucas aspera	Thumbai.
Maba buxifolia	Irumbali.
Mangifera indica	Mamaram.
Memecylon edule	Kasan.
Memecylon umbellatum	Do.
Mimusops hexandra	Palai maram.
Morinda tinctoria	Nona.
Murraya exotica	Kattu Kariveppilai.
Murraya konigii	Kariveppilai.
Odina wodier	Odiya maram.
Opuntia dillenii	Nagatali.
Pandanus odaratissimus	Thazhai.
Peltophorum ferrugineum	Iyalvagai.
Phoenix humilis	Siruicha.
Phoenix sylvestris	Icha maram.
Phyllanthus emblica	Nelli.
Pithecolobium dulce	Kodukapuli maram.
Pithecolobium saman	Thoongumoonji-maram.
Poinciana elata	Vadamudukki.
Pongamia glabra	Pungam.
Protium candatum	Kiluvai.
Pterocarpus marsupium	Vengai.
Pterocarpus santalinus	Raktha chandanam.
Pterolobium indicum	Karu indu, Indu.
Randia dumetorum	Karai.
Salmalia malabarica	Ilava maram.
Salvadora persica	Velvigai or Kunni.
Santalum album	Chandanam.
Sapindus emarginatus	Boonthikottai.
Scuita indica	Kokkimulu.
Shorea tumbaggaia	Kungiliyam.
Solanum trilobatum	Sundakai.
Strychnos nux-vomica	Etti.
Streblus asper	Kutti pila.
Strychnos potatorum	Thethankottai.
Tamarindus indica	Puliamaram.
Tectona grandis	Thekku.
Terminalia arjuna	Vellamaruthu, Nirmaddi.
Terminalia bellerica	Thani.
Terminalia pallida	..
Terminalia paniculata	Pillamarudu.
Terminalia tomentosa	Karimarudu.
Thespesia populnea	Puvarasu.
Toddalia aculeata	Kattu milagu.
Vitex negundo	Nochi.
Vitex altissima	Mayiladi.
Vitis quadrangularis	Puranai.
Webera corymbosa	Tharani.
Wrightia tinct-oria	Palai.
Wrightia tomentosa	Veppala.
Zizyphus jujuba	Yelandai.
Zizyphus oenoplia	Churaimullu.
Zizyphus xylopyrus	Kottauyelandai.

APPENDIX II.

(Vide paragraph 24.)

RAINFALL DATA OF IMPORTANT STATIONS.

Ponneri.

	1947.	1948.	1949.	1950.	1951.	1952.	1953.	1954.	1955.	1956.	
January	4·60	0·50	..	0·24	..	0·46	0·31	1·49	2·31	1·02	
February	0·04	0·27	..	0·17	..	0·48	..	..	..	..	
March	2·37	..	..	..	0·15	..	..	..	..	..	
April	0·13	..	0·24	..	1·63	..	0·12	..	0·80	2·89	
May	..	1·59	7·30	2·15	0·59	20·60	..	..	8·98	0·18	
June	0·90	1·21	5·70	1·19	1·50	1·47	1·06	1·01	1·55	4·62	
July	4·68	2·72	3·44	2·46	1·65	2·14	2·89	7·60	3·06	3·46	
August	4·52	2·28	10·22	6·44	8·55	2·13	4·44	3·78	6·22	6·80	
September	16·44	3·62	4·59	6·39	1·42	1·14	9·42	3·13	1·65	5·51	
October	10·84	6·69	1·68	8·61	1·87	6·36	15·70	16·12	4·80	4·90	
November	3·72	15·09	4·03	13·82	11·41	0·56	6·21	1·10	8·29	8·70	
cember	1·55	1·66	..	..	0·03	13·66	..	12·72	4·74	..	
	49·29	35·05	36·20	41·47	28·80	49·00	40·10	46·95	42·40	38·08	40·34

Saidapet.

	1947.	1948.	1949.	1950.	1951.	1952.	1953.	1954.	1955.	1956.	
January	4·35	1·61	..	0·27	0·37	0·73	1·58	3·36	5·73	1·97	
February	..	1·27	..	0·80	..	0·92	0·60	0·18	0·30	..	
March	..	..	..	..	..	..	..	0·07	..	..	
April	0·95	0·40	0·25	..	2·31	..	0·43	..	1·99	1·82	
May	..	0·31	7·33	3·09	0·11	14·08	..	..	6·24	0·38	
June	..	0·97	3·83	2·97	1·97	2·00	0·61	0·43	2·97	6·14	
July	5·07	3·87	3·37	3·33	3·68	1·20	3·30	8·92	3·77	5·16	
August	4·10	3·60	6·77	8·76	8·79	4·77	2·23	5·20	9·81	7·41	
September	5·54	7·26	5·78	7·92	1·72	1·48	5·72	3·14	3·51	8·30	
October	9·35	5·40	4·07	6·33	5·26	10·29	22·59	14·70	8·03	6·50	
November	2·47	8·70	6·48	7·36	11·98	1·58	5·75	..	10·86	9·34	
December	1·42	1·77	0·09	0·33	0·38	8·71	1·65	11·31	4·47	..	
	33·25	35·16	37·97	41·16	36·57	44·76	44·46	47·31	57·68	47·02	42·53

Satyavedu.

	1947.	1948.	1949.	1950.	1951.	1952.	1953.	1954.	1955.	1956.	
January	5·71	1·17	..	..	..	0·30	—	1·28	2·11	0·29	
February	..	0·52	..	1·28	..	..	..	..	..	..	
March	..	0·23	..	..	0·05	..	..	..	..	..	
April	..	..	..	..	2·95	..	1·51	..	0·79	0·24	
May	..	2·00	4·27	1·82	0·48	9·41	..	0·15	1·86	0·46	
June	..	3·77	5·81	0·76	0·79	1·93	1·60	2·22	1·30	5·42	
July	3·83	2·08	3·83	3·41	1·07	3·71	2·35	5·80	4·00	4·45	
August	5·45	1·95	11·65	5·25	5·77	3·55	4·01	3·33	5·70	6·52	
September	7·27	2·14	6·79	3·16	4·73	3·69	5·17	2·36	3·96	8·85	
October	5·44	7·58	6·10	5·69	1·31	5·40	14·56	13·25	5·80	9·63	
November	3·10	13·57	6·92	10·28	5·72	3·24	3·97	..	8·26	8·85	
December	0·59	0·75	..	..	..	8·53	0·14	11·17	4·55	..	
	31·39	35·76	45·37	31·65	23·87	39·76	33·31	39·56	38·33	44·71	36·27

Sriperumbudur.

	1947.	1948.	1949.	1950.	1951.	1952.	1953.	1954.	1955.	1956.	
January	3·72	2·86	..	0·06	..	..	0·63	2·18	3·95	0·29	
February	..	..	..	0·11	..	0·61	0·14	..	..	..	
March	..	..	..	..	0·05	..	..	0·02	..	..	
April	..	..	0·83	..	2·95	..	0·18	..	1·67	0·24	
May	1·55	0·46	3·67	2·79	0·48	6·77	..	..	5·77	0·46	
June	0·72	0·28	8·89	2·00	0·79	2·30	3·64	5·13	2·97	5·42	
July	4·85	1·28	4·01	3·15	1·07	1·29	1·45	8·16	4·43	4·45	
August	3·24	1·99	6·69	2·83	5·77	3·98	3·10	3·72	10·54	6·52	
September	5·70	1·72	5·64	6·94	4·73	0·24	3·31	3·71	4·73	8·85	
October	4·51	5·54	2·17	10·32	1·31	6·77	16·20	8·03	1·78	9·63	
November	2·13	7·39	3·91	4·89	5·72	1·40	5·76	..	5·08	8·85	
December	0·47	0·66	..	..	..	17·42	1·05	10·97	3·71	..	
	26·89	22·18	35·91	33·09	22·87	40·78	35·46	41·92	44·63	44·71	34·84

Triuvallur.

	1947.	1948.	1949.	1950.	1951.	1952.	1953.	1954.	1955.	1956.	
January	4·41	1·03	..	..	..	0·15	..	..	2·88	1·48	
February	..	..	..	0·30	..	1·31	0·57	..	..	..	
March	..	..	..	..	0·86	0·40	..	..	..	..	
April	0·50	..	..	..	5·16	..	0·31	..	1·22	1·29	
May	0·20	0·06	5·60	3·24	0·53	9·42	0·04	..	7·43	2·36	
June	1·50	1·07	6·00	1·07	1·98	1·51	0·85	1·76	1·56	5·38	
July	3·90	5·47	7·36	2·04	1·70	2·62	2·81	8·19	5·06	3·33	
August	4·27	3·75	5·65	3·23	5·75	4·19	3·24	4·08	8·80	7·31	
September	15·63	4·60	7·58	2·10	1·15	0·36	3·94	2·61	6·50	4·39	
October	3·03	4·96	2·28	5·68	2·83	4·15	16·40	11·11	7·79	5·85	
November	1·53	11·98	6·02	6·27	3·99	0·41	2·33	0·01	6·05	10·16	
December	0·55	1·14	..	0·64	..	14·38	1·13	11·48	5·01	..	
	35·52	34·06	40·49	24·55	23·95	38·90	31·62	39·24	52·30	41·55	36·22

APPENDIX III.

(Vide paragraph 38.)

List of Beat charges.

Name of beat. (1)	Headquarters of the beat. (2)	Name of reserved forests included in each beat with their extent. — Name of reserved forest. (3)	Extent in acres. (4)
	Sathiavedu Range.		
1 Kambakkam hill	Kambakkam	Kambakkam Reserved Forest and its extension (Part)	7,227·00
2 Kambakkam Plain	Do.	Do.	4,200·00
3 Thondampattu	Do.	Do.	4,360·00
4 Kadur	Kadur	Kadur Reserped Forest and its extentions	2,300·00
		Ugumudi Reserved Forest and its extensions	940·00
			3,241·00
5 Arudur	Enadivettu	Arudur Reserved Forest and its extension	2,889·00
		Appayapalayam Ex-Inam forest	100·00
			2·989·00
6 Kottamarikuppam	Kottamarikuppam	Sattiapedu Reserved Forest and its extension (Part)	3,586·86
		Irungulam Reserved Forest and its extension	824·00
			4,410·86
7 Sathiavedu	Sathiavedu	Sathiavedu Reserved Forest and its extension (Part)	4,239·00
8 Nemalur	Madarpakkam	Nemalur Reserved Forest and extension	639·14
9 Thondampattu Ex-Estate Beat	Thondampattu	Thondampattu ex T.TD. forest	2,560·00
10 Bhupatheeswarapuram	Bhupatheeswarapuram	Bhupatheeswarapuram ex-T.T.D forest	3,454·00
11 Siddikattumadugu	Siddikattumadugu	Siddikattumadugu Ex-T.T.D. forest	1,614·00
12 Chillamathur	Chillamathur	Chillamathur ex-T.T.D. forest	10,946·00
		Vittayyapalayam Ex-Inam forest	75·00
		Vavillakunta Ex-Inam forest	20·00
			11,041·00
13 Vanalur	Vanalur	Vanalur Ex-T.T.D. forests	4,221·00
	Tiruvallur Range.		
14 Ambakkam	Peradam	Ambakkam Reserved Forest and extension	5,963·270
		Siruvada Reserved Forest	382·00
			6,345·27

15 Nangalapuram	Nagalapuram	Nagalapuram Reserved Forest and extension (Part)	4,711·00
16 Ramagiri	Do.	Do.	4,985·00
17 Allikuli	Allikuli	Allikuli Reserved Forest and extension	6,550·00
18 Palavakkam	Mukkarapalayam	Palvaakkam Reserved Forest and extension	3,196·00
		Manali Reserved Forest	1,354·00
		Sengiagaram Reserved Forest	325·00
			4,875·00
19 Erumaivettipalayam	Erumaivettipalayam	Erumaivettipalayam Reserved Forest	532·0
20 Nayapakkam	Poondi	Nayapakkam Reserved Forest and extension	1,168·00
		Pallarambakkam Reserved Forest and extension	954·00
			2,122·00
21 Mailapore	Seethanjeri	Mailapore Reserved Forest and extension	1,124·25
		Vembadu Reserved Forest	839·00
		Sembedu Ex-Inam forest	804·00
		Vengal Ex-Inam forest	400·00
		Nalandoor ex-Inam forest	425·00
			3,592·25
22 Rajagunta	Rajagunta	Rajagunta Ex-Tirumalai Tirupati Devastanam forests	7,422·00
23 Nandanam	Nandanam	Nandanam Ex-Tirumalai Tirupati Devastanam forests	8,658·00
24 Pulikundrum	Pulikundrum	Pulikundrum Ex-Tirumalai Tirupati Devastanam forests	1,476·00
	Tambaram Range.		
25 Mannur	Mannur	Mannur Reserved Forest	553·00
		Koppur Ex-Inam forest	187·66
			740·66
26 Nallur	Puducheri	Nallur Reserved Forest	903·00
		Pudupair Reserved Forest	359·00
		Erumaiyur Reserved Forest	170·00
		Maganium Reserved Forest	955·00
			2,387·00
27 Vadakkupattur	Oragadam	Vadakkupattur Reserved Forest and its extension	710·00
		Vattambakkam Reserved Forest and extension	814·00
			1,524·00
28 Vandalur	Vandalur	Vandalur Reserved Forest and extension	2,896·00
		Tambaram Reserved Forest	228·61
		Pulikuradu Reserved Forest	185·00
			3,309·61

List of Beat charges—cont.

Name of beat.	Headquarters of the beat.	Names of reserved forests included in each beat with their extent. — Name of reserved forest.	Extent in acres.
(1)	(2)	(3)	(4)
29 Nanmangalam	Namangalam	Nanmangalam Reserved Forest and extension	676·00
		Perambakkam Reserved Forest	113·00
		Maduraipakkam Reserved Forest	451·00
			1,240·00
30 Kumili	Kumili	Kumili Reserved Forest	1,205·68
		Unamanjeri Reserved Forest	759·00
			1,964·68
31 Gudalur	Gudalur	Gudalur Reserved Forest and extension	2,277·00
		Kelambakkam Range.	
32 Singaperumalkoil	Singaperumalkoil	Senkundram Reserved Forest	1,295·00
		Tirutheri Reserved Forest	851·00
		Anjur Reserved Forest	1,627·00
			3,773·00
33 Sonalur	Kolathur	Kolathur Reserved Forest and extension	1,866·00
		Sonalur Reserved Forest	1,365·00
		Mambakkam Reserved Forest and extension	1,278·00
		Ambarambakkam ex-Inam forest	125·75
		Ottivakkam Ex-Inam forest	315·48
			4,950·23
34 Taiyur	Taiyur	Taiyur Reserved Forest	1,515·00
		Kayar Reserved Forest and extension	1,109·00
		Kalvoy	72·0
			2,696·00
5 Vallam	Vallam	Vallam Reserved Forest	1,726·00
		Sirukundram A & B Reserved Forest	1,490·00
			3,216·00

APPENDIX IV.

(Vide paragraph 71.)

Details of forest offences.

Year.	Unauthorised felling and removal of forest produce.	Illicit grazing.	Other offences.	Total number of offences.	Revenue realised.	Remarks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					RS. A. P.	
1947-48	661	655	9	1,325	4,137 14 0	
1948-49	1,323	746	1	2,070	8,961 6 5	
1949-50	1,918	603	8	2,529	15,683 8 0	
1950-51	2,709	534	23	3,266	16,496 13 0	
1951-52	3,547	841	75	4,463	10,735 8 0	
1952-53	3,480	516	173	4,169	14,961 6 0	
1953-54 .. .. }	Details not available.			4,168 }	Details not available.	
1954-55 .. .. }				4,229 }		
1955-56	4,186	504	133	4,828	21,373 8 0	

APPENDIX V.

(Vide paragraph 72.)

List of fires.

Serial number and name of reserved forest.	Area in acres.								Remarks.
	1949.	1950.	1951.	1952.	1953.	1954.	1955.	1956.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1 Vellam	..	5·0	..	..	..	..	..	..	
2 Senkunram	..	5·0	..	..	..	..	..	..	
3 Thirutheri	..	9·0	..	..	..	..	..	..	
4 Sonalur	..	3·0	..	..	20 sq.ft.	..	..	..	
5 Vandalur (1956 plantation)	..	1·0	..	..	..	..	..	..	
6 Kumli	..	1·0	..	..	..	..	..	..	
7 Nayapakkam 'B' block	1·0	..	..	..	..	..	..	..	
8 Nayapakkam 'A' block	0·6	..	..	..	..	..	..	..	
9 Kambakkam	..	1,379·04	31·0	..	80·5	2·0	70·0	..	
10 Allikuli	..	8·0	3·0	..	..	..	..	..	
11 Ambakkam	..	0·81	12·0	..	..	4·0	..	227·0	
12 Satyavedu	..	17·5	..	..	..	..	..	227·0	
13 Nagalapuram	..	..	5·0	..	..	..	..	..	
14 Sattikuthimadigu (TTD)	..	..	..	88·0	25·0	..	..	60·0	
15 Boopatheswarapuram	..	..	..	52·0	..	..	..	65·0	
16 Thondampathu	..	..	..	112·5	30·0	..	15·0	..	
17 Nandanam	..	..	..	..	50·0	..	..	22·0	
18 Vanalur	..	..	..	..	..	..	..	75·0	
19 Rajukunta	..	..	..	..	..	..	..	12·0	

APPENDIX VI.

(Vide paragraph 77.)

Important pests and diseases of cashew and their control.

(i) Major Pests.

1. *The cashew borer—Plocaederns furuginines.*—Long stout white flushy frules of this beeth bore into the main trunk and root portion of the trees. Major portion of the grub stage is spent feeding on the bark layer. Life history extends over some months.

The leaves of the attacked tree turn pale yellow in the later stages. The tree dies eventually.

For controlling the pest, remove live stages from the trees and apply B.H.C. 0·1 per cent (1 lb. of 50 per cent B.H.C. in $6\frac{1}{2}$ gallons of water) to the basal trunk and root portion. Destroy badly damaged trees with the gurbs.

2. *The leaf Misur—Acrocereops Syngrammam.*—This appears at the time of new flush. The small caterpillars mire into vendu leaves, the damage manifests itself as big holes on the leaf surface due to the drying and subsequent crumbling of the mirad area. Young plants suffer more due to the pest.

The pest can be kept under check by spraying Folidor 0·025 per cent (1 oz. in $12\frac{1}{2}$ gallons).

3. *The leaf eating caterpillar—Cricula trifenestratee.*—This is a sporadic pest causing considerable during serious out-breaks defilioting the trees extensively. The caterpillar is clothed in poisonous spires and is dangerous to handle.

Control.—Spray arsennicals (calcium aresenate or lead arsenate) or parathian 0·25 per cent (fiidol).

4. *The tea mosquito—Helopeltis Antonii.*—A reddish brown active capside big Anults and nymphs suck up the plant juice from tender plant parts more often the vegetative shoots. Its damage results in the death of young branches. When the leuppunsctures in flowerscence branches, it may result in the fading of flowers to some extent.

Control.—Dust or spray D.D.T. (5 per cent dust or 0·1 per cent spray).

5. *Caterpillar dama-ging fresh shoot tips and inflorescence branches* (*Chelaria Haligramma*).—The small caterpillars damage shoot tips when new leaves are put forth. Sprouting inflorescence branches are also affected. Florescence buds are bowed and caten. This leads to the stunting and drying of affected portions.

Control.—Spray D.D.T. or Tolidor.

6. *Leaf Thrips Selenothrips Rubrociuctus.*—This is serious on young plants. The leaves turn pale brown and the growth of the plant is affected.

Control.—Spray B.H.C. 0·05 per cent (1 lb. of B.H.C. 50 per cent in 13 gallons) or folidor 0·025 per cent.

(ii) Minor Pests.

Leaf Webben (*Corthaga* Sp.).—On young plants apple and nut boring caterpillar. (*Thylacoptile* panrosima), green *Tortricid* caterpillar damaging apple and nut, leaf roller, leaf twisting weeire (Apoderus tranquebaricus, geomtrid caterpillar (*Oenospila flanifuscata*) feeding on fresh leaves *Chrysomelid beeths* feeding in groups on tender twigs and leaves-leaf (Mylloceros sp.) the caterpillar of Metavantia lyrtace, red ants, mealy bugs scales flower thrips, etc red ants proteen scales and mealy bugs and are a source of nuisance.

(iii) Cashew Store Pest.

1. *Triboleum Cartaneum Red Gracia Buthe* sevior on kernels in storage.
   Control.—Fumigate with bromide (1 lb. 1,000 c.ft. of space).
2. *Alphatolise Piceus.*—Attack kernels.
3. *Ephestia Cantella.*—Caterpillar damaging kernels.
4. Sawtoothed grain buthi—*Oryzaephilus surinamemsis.*
5. *Necrobia Rufipes.*
6. *Tenebroides Maunitanicus.*
7. *Plodia Interpunctella.*—The most serious and common pest is *Tribolesum castumeum.*

Dusting of store-rooms with B.H.C., fumigation with methyl bromides, etc., may be adopted for controlling the insects.

(iv) Diseases.

1. *Apple Rot* (*Glcoeosporium* Sp.).—Pink coloured fortification of to fungus are seen on the apple causing rotting. Some of the affected apple chop prematured sometimes affects tree nuts also.

Control.—Spraying with 1 per cent B.M. or copper.

2. *Grey Blight or Leaft Spot* (*Pestalotia Dishaeta*).—Grey blight normally affects the leave of the weak plants causing extensive damage to the leaves. The other leaf spot are pathogen to leaves of healthy trees also.

Control.—Spraying with 1 per cent B.M. or other copper fungicides.

3. *Die Back—Pellecalaria Salenenicolor.*—Pinkish growth of the fungus will be seen on twigs causing cutting of the twigs. Affected branches dry up in due course.

Control.—The affected branches are to be cut about a foot below the healthy shoot and pasted with Bordeamse paste. The stem and other portions may be sprayed with 1 per cent B.M.

4. *Inflorescener Drying*(*Glocosporium* Sp.)—Due to injuries caused by insects or due to weakness of the trees the inflorenscences are affected by causing complete drying up of the Glocosporium flowers. The furuch bodies of the fungus are seen as pinkish to crimson coloured growth.

Control.—Spraying to inflorenscence before opening with 1 per cent B.M. or other copper fungicides.

5. *Sooty mould—Capriodium* spp *and Meliola* spp.—*Control.*—The affected portions will be treated with insecticides like nicotine sulphate.

APPEN

(Vide paragraph

Outturn and prices obtained from the

Serial number and name of felling series.	1942–43.			1943–44.		
	Area of coupe acres.	*Yield.*	*Price per acre.*	*Area of coupe acres.*	*Yield.*	*Price per acre.*
		TONS.	RS. A. P.		TONS.	RS. A. P.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 Kambakkam	143	630	7 8 0	112	436	2 0 0
2 Akkachampalayam	148	639	5 14 0	126	284	2 0 0
3 Thondambattu	95	202	3 12 0	102	165	2 0 0
4 Kadur	117	287	3 10 0	105	154	2 0 0
5 Arudur	137	558	3 6 0	85	227	2 0 0
6 Mopurpalli	169	480	5 14 0	118	230	2 0 0
7 Ittipakkam	43	136	3 10 0	47	224	21 8 0
8 Rajagunta	45	260	5 10 0	22	95	17 0 0
9 Kothamarikuppam	34	85	18 0 0	49	264	16 4 0
10 Sathiavedu	54	166	8 8 0	49	205	23 0 0
11 Pedda Ittipakkam	32	38	3 6 0	27	20	3 12 0
12 Peradam	44	188	8 12 0	49	151	16 8 0
13 Ambakkam	51	301	7 0 0	40	243	40 0 0
14 Pudukuppam	43	297	14 8 0	47	497	23 0 0
15 Dasikuppam		Not sold.		44	98	4 6 0
				35	71	4 12 0
16 Vellur	32	342	8 10 0	30	386 C 18	8 0 0
17 Pelathukona	39	324	7 0 0	38	391 C 39	12 2 0
18 Ramagiri	33	284	14 8 0	1	25	14 8 0
	..	..	..	32	105	14 0 0
19 Jarukollodu	38	321	4 4 0	35	218	17 0 0
20 Krishnareddikone		Not sold.		44	501	3 8 0
				46	396 C 75	18 2 0
21 Nakkalakona	5	16	3 8 0	34	174	3 8 0

DIX VII.

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fuel coupes from **1942–43** *to* **1955–56.**

1944–45.			1945–46.			1946–47.		
Area of coupe acres.	*Yield.*	*Price per acre.*	*Area of coupe acres.*	*Yield.*	*Price per acre.*	*Area of coupe acres.*	*Yield.*	*Price per acre.*
	TONS.	RS. A. P.		TONS.	RS. A. P.		TONS.	RS. A. P.
(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
46	74	17 8 0	89	210	3 12 0		Not sold.	
30	38	12 12 0	..	..	..	..	..	..
66	229	18 0 0	91	158	9 4 0		Not sold.	
46	180	8 8 0	..	..	..			
65	122	6 14 0	12	27	3 4 0		Do.	
33	75	3 8 0	..	..	....			
64	95	8 0 0	35	78	15 0 0	60	50 }	6 0 0
35	188	15 0 0	90 }	330	15 0 0	67	82 }	
..	..	..	60 }	..	..	..	..	..
54	76	12 8 0	{ 20	110				
24	22	17 4 0	{ 74	211	6 14 0	36	182	6 0 0
..	..	..	{ 56	243				
55	279	20 0 0	123	429	..		Not sold.	
35	36	12 8 0	..	..	..			
10	15	22 2 0	10	47	22 2 0	49	277	54 0 0
.. 25	130	..	20	79	10 12 0	..	..	..
12	48	23 0 0	10	C 5	23 0 0	45	202	60 0 0
30	95	..	..	F 521	..	..	..	..
..	..	..	37	C 8	13 0 0	..	..	..
..	..	..	..	F 221	..	..	..	..
45	100	12 0 0	51	C 6	9 0 0	64	270	25 0 0
..	..	..	..	F 91	..	..	..	..
54	293	19 2 0	48	C 3	16 4 0	58	339	51 0 0
..	..	..	..	F 244	..	..	..	..
29	35	3 14 0	30	22	2 0 0	39	11	2 2 0
..	C 4 }							
60	325 }	20 0 0	25	C 3	12 12 0	47	285	39 0 0
5	41	16 8 0	51	260	..	..	..	..
10	35							
72	665	29 0 0	54	325	20 10 0	48	347	67 0 0
	C 5							
50	551	30 4 0	8	550	30 4 0	38	334	35 0 0
..	..	..	40	607	46 4 0	..	..	..
28	29	2 8 0	5	17	2 8 0	54	107	2 2 0
..	..	..		C 8				
	C 5		36	37	3 0 0			
				C 5				
2	6	8 0 0	63	233	10 7 0	55	368	11 0 0
	C 4							
34	317	7 0 0						
	C 36							
2	12	12 2 0	31	45 }	11 0 0	85	429	12 0 0
..	C 5	10 8 0	30	C 13 }				
27	164							
	C 17							
9	91	14 0 0	30	136 }	12 0 0	82	248	11 8 0
32	150	21 4 0	32	20 }				
	C 19							
1	10	7 0 0	81	280	17 0 0	80	397	12 0 0
42	198	16 0 0	..	C 12				
	C 20							
30	159	20 0 0	28	150	20 0 0	44	265	13 0 0
				C 29				
..	C 19	..	52	209	12 6 0	..		
				C 47				
17	116	14 0 0	27	259	10 8 0	23	137	10 0 0
	C 22			C 16				

APPEN

Outturn and prices obtained from the

Serial number and name of felling series—cont. (1)—*cont.*	1947–48. *Area of coupe acres.*	1947–48. *Yield.* TONS.	1947–48. *Price per acre.* RS. A. P.	1948–49. *Area of coupe acres.*	1948–49. *Yield.* TONS.	1948–49. *Price per acre.* RS. A. P.
	(17)	(18)	(19)	(20)	(21)	(22)
1 Kambakkam		Not sold.			Not sold.	
2 Akkachampalayam		Do.			Do.	
3 Thondambattu		Do.			Do.	
4 Kadur		Do.			Do.	
5 Arudur		Do.			Do.	
6 Mopurpalli		Do.			Do.	
7 Ittipakkam	40	283	54 0 0	43	272·20	45 0 0
8 Rajagunta	54	242	4 0 0	47	171	40 0 0
9 Kothamarikuppam	54	198	46 0 0	50	185	45 0 0
10 Sathiavedu	51	218	6 0 0	53	157	51 0 0
11 Pedda Ittipakkam	28	50	10 8 0	27	9	7 0 0
12 Peradam	54	150	25 0 0	45	100	20 0 0
13 Ambakkam	42	510	120 0 0	48	170	100 0 0
14 Pudukuppam	25	141	44 0 0	55	131	90 0 0
15 Dasikuppam	47	96	20 0 0	42	36	18 0 0
16 Vellur	26	164	52 0 0	25	135	18 0 0
17 Pelathukona	32	24	105 0 0	38	C 17 233	50 0 0
18 Ramagiri	32	150	101 0 0	40	C 25 139·30	42 0 0
19 Jarukollodu	19	127	14 0 0	44	C 36 154	49 0 0
20 Krishnareddikone	56	392	859 0 0	41	C 31 309	42 0 0
21 Nakkalakona	21	224	111 0 0	22	C 39 118	45 0 0

Serial number and name of felling series—cont. (1)—*cont.*	1952–53. *Area of coupe acres.*	1952–53. *Yield.* TONS.	1952–53. *Price per acre.* RS. A. P.
	(32)	(33)	(34)
1 Kambakkam	40	67·10	2 0 0
2 Akkachampalayam	49	75·12	56 0 0
3 Thondambattu	42	80·20	34 0 0
4 Kadur	63	129	36 0 0
5 Arudur		Not sold.	
6 Mopurpalli		Do.	
7 Ittipakkam	51	102·7	80 0 0
8 Rajagunta	36	56·25	48 0 0
9 Kothamarikuppam	43	117·20	23 0 0
10 Sathiavedu	57	229·38	75 0 0
11 Pedda Ittipakkam	31	79·2	17 0 0
12 Peradam	53	150	34 0 0
13 Ambakkam	39	158·12	35 0 0
14 Pudukuppam	42	99	35 0 0
15 Dasikuppam	41	106·30	9 0 0
16 Vellur	35	87	18 0 0
17 Pelathukona	37	227	80 0 0
18 Ramagiri	32	71	115 0 0
19 Jarukollodu	30	57·2	35 0 0
20 Krishnareddikone		Not sold.	
21 Nakkalakona	27	178	130 0 0

DIX VII—*cont.*

fuel coupes from **1942–43** *to* **1955–56**—cont.

1949–50. Area of coupe acres.	1949–50. Yield. TONS.	1949–50. Price per acre. RS. A. P.	1950–51 Area of coupe acres.	1950–51 Yield. TONS.	1950–51 Price per acre. RS. A. P.	1951–52. Area of coupe acres.	1951–52. Yield. TONS.	1951–52. Price per acre. RS. A. P.
(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
	Not sold.			Not sold.		33	35·20	25 0 0
	Do.			Do.		43	212	105 8 0
50	57½	18 0 0	56	139·35	67 0 0	52	221·2	52 0 0
	7½							
	Not sold.			Not sold.			Not sold	
	Do.			Do.			Do.	
				223				
	Do.			Not sold.			Do.	
46	350	32 0 0	56	223	72 0 0	47	210	70 0 0
43	57½	40 0 0	43	118·28	105 0 0	42	120	88 0 0
52	298½	27 0 0	55	241	61 0 0	38	90¾	49 0 0
65	313½	42 0 0	17	126	90 0 0	67	198½	170 0 0
34	81	10 0 0	33	..	..	52	47·18	51 0 0
50	266½	17 0 0	40	55·32	25 0 0	48	188·20	55 0 0
32	71½	53 0 0	53	611½	85 0 0	46	384·4	100 0 0
47	88	56 8 0	62	464·5	50 0 0	34	146·10	52 0 0
43	37½	4 8 0	42	53\1	5 0 0	54	96·8	8 0 0
40	10½	20 0 0	30	C 7	22 0 0	28	68·2	50 0 0
	C15½							
35	82	126 0 0	41	C 19½	57 0 0	28	148·35	161 0 0
	C 9			184½				
34	91½	197 0 0	20	114	95 0 0	30	170½	111 0 0
39	4	130 0 0	44	245·13	100 0 0	48	109	52 0 0
	C 36½							
65	139½	70 0 0	62	310·30	75 00	57	256	27 0 0
				C 20				
25	C 24	116 0 0	18	110	153 0 0	18	108½	105 0 0
	88							

1953–54. Area of coupe acres.	1953–54. Yield. TONS.	1953–54. Price per acre. RS. A. P.	1954–55. Area of coupe acres.	1954–55. Yield. TONS.	1954–55. Price per acre. RS. A. P.	1955–56. Area of coupe acre.	1955–56. Yield. TONS.	1955–56. Price per acre. RS. A. P.
(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)
			62	119	29 0	54	76	26 0 0
54	103·20	34 0 0		Not sold.		46	106	81 0 0
	Not sold.		44	141·11	45 ⌉	50	146½	62 0 0
	Do.					60	143	61 0 0
				Not sold.		54	50	25 0 0
	Do.			Do.		43	129½	52 0 0
62	148	48 0 0				37	125	47 0 0
			65	154·1	25	46	100	27 0 0
43	103½	40 0 0		Not sold.			Not sold.	
	Not sold.			Do.		60	416	60 0 0
27	48·32	80 0 0		Do.			Nort sold.	
	Not sold.			Do.			Do.	
	Do.			Do.			Do.	
	Du.		50	137·29	20 0	47	141½	30 0 0
35	122½	61 0 0		Not sold		47	149	25 0 0
	Not sold.			Do.			Not sold.	
	Do.			Do.			Do.	
	Do.			Dc		24	*	60 0 0
	Do.							51 0 0
			16	111	70 0 0	47	*	70 0 0
19	69·23	0 0	39	122	115 0 0		Not sold.	
37	103	111 0 0		Not sold.		61	128	45 0 0
31	110½	60 0 0		Do.		45	129	45 0 0
	Not sol					42	198	43 0 0
				Do.		24	124	105 0 0
	Do.					33	125	80 0 0

* Details not available.

APPENDIX \ I.

(Vide paragraph 108.)

Casuarina plantations prescribed for felling, actually full price obtained and the yield.

Prescribed. Year.	Locality.	Area.	Done. Year.	Locality.	Area.	Yield. Kind.		Quantity.	Price obtained.
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)	(9)
				Gudalur Series.				TONS.	RS.
1955–56 ..	Gudalur Reserved Forest 1945 Plantation (Part).	38	1954–55 ..	Gudalur Reserved Forest 1945 and 1946 plantations.	173	Firewood		12	160
1956–57 ..	Gudalur Reserved Forest 1945 Plantation. (Part).	37							
1957–58 ..	Gudalur Reserved Forest 1946 Plantation (Part).	51		No plantations are raised.					
1958–59 ..	Gudalur Reserved Forest 1946 Plantation (Part).	51							
				Senkundram Series.					
				No plantations were raised.					
				Mannur Series.					
1956–57 ..	Mannur Reserved Forest 1945 Plantation.	51	1954–55 ..	Mannur Reserved Forest 1945 plantation.	62	Firewood	63	35¼	3,710
1957–58 ..	Mannur Reserved Foerest 1946 Plantation.	50	Do.	Mannur Reserved Forest 1946 plantation.	50	Firewood	105	7¾	3,550
				No plantation were raised.					
				Mambakkam Series.					
1957–58 ..	Mambakkam Reserved Forest 1944 Plantation.	48	1954–55 ..	Mambakkam 1945 and 1946 plantation.	131	Firewood	316	18	20,040
1958–59 ..	Mambakkam Reserved Forest 1946 Plantation.	52·5		No plantations were raised.					
				Taiyur Series.					
1955–56 ..	Taiyur Reserved Forest 1944 and 1945 Plantation.	54	1954–55 ..	Taiyur Reserved Forest 1944, 1945 and 1946 plantations.	124	Firewood	110	..	7,800
1958–59 ..	Taiyur Reserved Forest 1946 Plantation.	43		No plantation was raised.					
				Kayar Series.					
1956–57 ..	Kayar Reserved Forest 1946 Plantation. (Part).	49							
1957–58 ..	Kayar Reserved Forest 1946 Plantation. (Part).	45	1954–55 ..	Kayar Reserved Forest 1944 and 1946 plantations.	141	Firewood	127	17	5,050.
1958–59 ..	Kayar Reserved Forest 1946 Plantation.	44		No plantation was raised.					

REMARKS.—Vide Chief Conservator's Proceedings No. 3424/53, dated 24th November 1953 (one thousand nine hundred and fifty-three only).

APPENDIX IX.

(Vide paragraph 109).

Yield of Minor Forest Produce and prices obtained.

Year. (1)	Kind of produce. (2)	Unit of lease. (3)	Yield quantity. (4)	Revenue. (5)
				RS.
1943–44 ..	*Cassia auriculata*	Ponneri taluk	..	60
	Cassia auriculata	Trivellore taluk ..	..	80
	Rela bark	Satyavedu Range ..	47½ candies.	152
	Minor Forest Produce	Do. ..	..	50
1944–45 ..	*Cassia auriculata*	Ponneri taluk	10,300 lb.	34
	Cassia auriculata	Trivellore taluk ..	13,160 lb.	21
	Minor Forest Produce	Satyavedu Range ..	4,000 lb.	50
1945–46 ..	Tangedu bark	Satyavedu Range ..	110,720 lb.	82
	Minor Forest Produce, Kankadu.	Do. ..	180 lb.	50
	Kanaka	Do.	820 lb.	
1946–47 ..	Tangedu bark	Tiruvellore taluk ..	..	51
1946–47 ..	Do.	Ponneri taluk	..	31
1947–48 ..	Do.	Do.	..	51
1947–48 ..	Do.	Tiruvellore taluk ..	..	76
1948–49 ..	Do.	Ponneri taluk	..	Nil.
	Do.	Tiruvellore taluk ..	..	Nil.
	Rela bark in all Reserved Forests of Satyavedu Range.	Satyavedu Range ..	..	Nil.
1949–50 ..	Tangedu bark	Ponneri taluk	Nil.	50
	Do.	Trivellore taluk ..	Nil.	71
	Rela bark in all Reserved Forests	Satyavedu Range ..	Rela bark Nil.	70
			Tamarind 115 Qrs.	60
1950–51 ..	Tangedu bark	Ponneri taluk	Nil.	62
	Do.	Tiruvellore taluk ..	Nil.	77
	Rela bark in all Reserved Forests of Satyavedu Range.	Sathyavedu Range ..	410 lb.	32
1951–52 ..	Tangedu bark	Ponneri taluk	..	155
	Do.	Trivellore taluk ..	..	135
	Rela bark in all Reserved Forests of Satyavedu Range.	Satyavedu Range ..	..	..
1952–53 ..	Tangedu bark	Ponneri taluk	..	Nil.
	Do.	Trivellore taluk ..	..	Nil.
1953–54 ..	Do.	Ponneri taluk	..	Nil.
	Do.	Tiruvellore taluk ..	..	Nil.
	Rela bark in all Reserved Forests of Satyavedu Range.	Satyavedu Range ..	..	Nil.
1954–55 ..	Rela bark in all Reserved Forests of Satyavedu Range except Estate forests and Panchayat forests.	Satyavedu Range ..	814 lb. Rela bark 1½ tons branches.	105
	Tangedu bark	Ponneri taluk of Satyavedu Range.	306 lb. AV bark.	140
1955–56 ..	Rela bark in all Reserved Forests of Satyavedu Range.	Satyavedu ange ..	Nil.	Nil.
	Tangedu bark	Ponneri and Trivellore taluk	Nil	Nil.

APPENDIX X.

(Vide paragraph 110.)

Revenue realized by sale of manure leaf permits and quantity removed.

Revenue analised.

Name of the series.	1949–50. Quantity.	1949–50. RS. A. P.	1950–51. Quantity.	1950–51. RS. A. P.	1951–52. Quantity.	1951–52. RS. A. P.	1952–53. Quantity.	1952–53. RS. A. P.	1953–54. Quantity.	1953–54. RS. A. P.	1954–55. Quantity.	1954–55. RS. A. P.	1955–56. Quantity.	1955–56. RS. A. P.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1 Sonalur series	No removals.		80 C/lds.	60 0 0	No removals.		No removals.		No removals.		17 C/lds	12 12 0	No removals.	
2 Kolathur series	2 C.L.	1 8 0	No removals.		Do.		Do.		Do.		No removals.		Do.	
3 Vattambakkam series ..	150 H/ Lds.	7 0 6	Do.		Do.		Do.		Do.		5 C.L.	3–12 0	Do.	
4 Kumli series	No removals.		Do.		Do.		Do.		Do.		No removals.		Do.	
5 Tirutheri series	Do.		Do.		Do.		Do.		3 C.L.	2 4 0	Do.		Do.	
6 Vallam series	68 H/Lds.	3 3 0	Do.		Do.		Do.		No removals.		9 C.L.	6 12 0	Do.	

APPENDIX XI.

(Vide paragraph 143.)

FELLING OF FUEL COUPES IN FUEL WORKING CIRCLE (NELLORE WORKING PLAN).

Satyavedu Range.

Year.	Locality. Reserve.	Locality. Compartment.	Locality. Sub-compartment.	Area of sub-compartment.	Number of years fellings prescribed.	Average annual cut acres.	Year.	Area exploited.	Other details. (Coupes).		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		
					(1) Kambakkam Felling Series.						
1942–44 ..	Kambakkam ..	2	a	94	2	44	1942–43 ..	39	C	XXVI	
							1943–44 ..	5	C	XXVII	Arrear.
							1942–43 ..	50	C	XXVII	Advance feellings.
1944–46 ..		2	b	136	3	..	1942–43 ..	54	C	XXVIII	
							1943–44 ..	45	C	XXIX	
							1943–44 ..	62	C	XXX	
1946–51 ..		7	a	223	5		1944–45 ..	46	C	I	
							1944–45 ..	30	C	II	Part.
							1945–46 ..	18	C	II	Balance.
							1945–46 ..	40	C	IV	
							1945–46 ..	31	C	III	
							1946–47 to 1950–51.			Not sold.	

1951–54 ..	--	4	b part.	152	8		1951–52 ..	33	C	V	
							1952–52 ..	40	C	VI	
							1953–54 ..	54	C	VII	
1954–58 ..		5	b	152	4		1954–55 ..	62	C	VIII	Unsold.
							1955–56 ..	54	C	IX	

(2) *Akkachampalayam felling series.*

1942–45 ..		10	b part.	140	3	48	1942–43 ..	48	C	XXIV	
							1942–43 ..	49	C	XXV	Advance felling.
							1942–43 ..	51	C	XXVI	Do.
1945–57 ..		10	a	120	2	48	1943–44 ..	63	C	XXVII	
							1943–44 ..	63	C	XXVIII	Advance felling.
1947–49		4	a	100	2		1944–45 ..	66	C	XXIX	
							1945–46 ..	46	C	XXX	Advance felling.
1949–51 ..		9	a	98	2		1945–46	45	C	I	
							1945–46 ..	46	C	II	
							1946–47 to 1950–51.				Not sold.
1951–55 ..		9	b	177	4		1951–52 ..	43	C	III	
							1952–53 ..	49	C	IV	
							1953–54 ..	43	C	V	Unsold.
1955–57 ..		9	c part.	107	2		1954–55 ..	44	C	VI	
							1955–56 ..	46	C	VII	

(3) *Tondampattu Felling Series.*

1942–46 ..	Kambakkam ..	12	a	182	4	47	1942–43 ..	46	C	XXII	
							1942–43 ..	49	C	XXIII	Advance felling.
							1943–44 ..	53	C	XXIV	
							1943–44 ..	49	C	XXV	Advance felling.
							1944–45 ..	65	C	XXVI	
							1945–46 ..	12	C	XXVII	Advance felling.
1946–48 ..		12	b	105	2	47	1946–47 ..	..			Unsold.
							1947–48 ..	..			Do.
1948–51 ..		15	a	153	3	47	1948–49 ..	--			Do.
							1949–50 ..				Do.
							1950–51 ..	56	C	XXIX	
1951–54 ..		15	b	135	3	47	1951–52 ..	52	C	XXX	
							1952–53 ..	42	C	I	
							1954–55 ..	44	C	II	
							1955–56 ..	50	C	III	
1954–58 ..		14	a	216	5	47	1955–56 ..	60	C	IV	

(4) *Kadur Felling Series.*

1942–46 ..	Kadur --	1	b	211	4	60	1942–43 ..	57	C	XXVII	
							1942–43 ..	60	C	XXVIII	Advance felling.
							1943–44 ..	61	C	XXIX	
							1943–44 ..	44	C	XXX	Advance fellin
1946–47 ..		1	c	60	1	60	1944–45 ..	64	C	I	

FELLING OF FUEL COUPES IN FUEL WORKING CIRCLE (NELLORE WORKING PLAN)—*cont.*

Satyavedu Range—cont.

ear.	Locality. Reserve.	Compart-ment.	Sub-com-partment.	Area of sub-com-partment.	Number of years feelings prescribed.	Average annual cut acres.	Year.	Area exploited.	Other details. (C=Coupes).
1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					(4) *Kodur Felling Lines*—cont.				
1947–50 ..	Kadur	6	a	213	3	60	1944–45 ..	35	C II Advance felling.
							1945–46 ..	35	C II Do.
							1945–46 ..	90	C III Do.
							1945–46 ..	60	C IV Do.
							1946–47 ..	60 and 67	C V and C VI
							1947–48 to 1951–52. }	Nil.	Not sold.
1950–51 ..		2	b	53	1	60			
1951–52 ..		3	a	73	1	60			
1952–57 ..		5	..	297	5	60	1952–53 ..	63	C VII
							1953–54 ..	65	C VIII Unsold.
							1954–55 ..	78	C IX Do.
							1955–56 ..	54	C X
					(5) *Ardur Felling Series.*				
1942–45 ..	Ardur ..	1	b	126	3	44	1942–43 ..	45	C XXV
							1942–43 ..	50	C XXVI Advance felling.
1945–48 ..		1	c	142	3	44	1942–43 ..	42	C XXVII Do.
							1943–44 ..	44	C XXVIII Do.
							1943–44 ..	41	C XXIX
1948–53 ..		2	c	206	5		1944–45 ..	54	C XXX
							1944–45 ..	24	C I Advance felling.
							1945–46 ..	20	C I Do.
							1945–46 ..	42	C II
							1945–46 ..	32	C III
							1946–47 ..	56	C IV
							1946–47 ..	36	C V
							1947–48 to 1952–53		Nil.
1953–59 ..		3	a	244	6		1953–54 ..	62	C VI
							1954–56 ..	43	Unsold C VII.
							1955–56 ..	43	C VII
							1955–56 ..	37	C VIII

(6) Mopp Palli Felling Series.

942–43	Ardur	6	a	63	1	49	1942–43	74	C	XXV	
		7	a	195	4	49	1942–43	51	C	XXVI	Advance felling.
							1942–43	44	C	XXVII	Do.
							1943–44	54	C	XXVIII	Do.
							1943–44	64	C	XXIX	
		4	a	148	3	49	1944–45	55	C	XXX	
								35	C	I	Advance felling.
							1945–46	17	C	I	Do.
							1945–56	56	C	II	Do.
		4	b	232	5	49	1945–46	50	C	III	Do.
							1946–47 to 1952				Unsold.
		5	a	148	3	49	1953–54	43	C	VI	
							1954–55	65	C	VII	
							1955–56	46	C	VIII	

(7) Ittipakkam Felling Series.

1942–46	Satyavedu	13	c	170	4	41	1942–43	43	C	XVIII	
							1943–44	47	C	XIX	
							1944–45	10	C	XIX	
							1944–45	25	C	XX	
							1945–46	10	C	XX	
							1945–46	20	C	XXI	
1946–51		13	a	204	5	41	1946–47	49	C	XXII	
							1947–48	40	C	XXIII	
							1948–49	43	C	XXIV	
							1949–50	46	C	XXV	
1951–52		13	b	62	1	41	1950–51	56	C	XXVI	
							1951–52	47	C	XXVII	
1952–54		13	d	94	2	41	1952–53	51	C	XXVIII	
							1953–54	45	C	XXIX	Withdrwn.
1954–57		14	b	126	3	41	1954–55	45	C	XXX	No demand till 1955–56.
							1955–56	38	C	I	

(8) Bajagunta Felling Series.

1942–43	Satyavedu	11	6	125	3	41	1942–43	45	C	XIX	
							1943–44	22	C	XX	
							1944–45	12	C	XX	
							1944–45	30	C	XXI	
1945–46		11	c	35	1	41	1945–46	37	C	XXII	
1946–49		11	d	124	3	41	1946–47	45	C	XXIII	
							1947–48	54	C	XXIV	
1949–54		11	2	196	5	41	1948–49	47	C	XXV	
							1949–50	43	C	XXVI	
							1950–51	43	C	XXVII	
							1951–52	42	C	XXVIII	
							1952–53	36	C	XXIX	
							1953–54	27	C	XXX	
1954–55		9	a	47	1	41	Withdrawn as in steep slopes.		C	I	
		9	b	213	5	41	1955–56	60	C	II	

FELING OF FUEL COUPES IN FUEL WORKING CIRCLE (NELLORE WORKING PLAN—*cont.*

Satyavedu Range—*cont.*

Year.	Locality. R: erve.	Compart-partment.	Sub-com-partment.	Area of sub-com-partment.	Number of years feelings prescribed.	Average annual cut acres.	Year.	Area exploited.		Other details. (C=Coupes).	
(1)	2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(10)	
					(9) *Kothanarikuppam Felling Series.*						
1942–43 ..	Satyav du ..	17	d	48	1	46	1942–43 ..	34	C	XXV	
1943–48 ..		16		242	5	46	1943–44 ..	49	C	XXVI	
							1944–45 ..	45	C	XXVII	
							1945–56 ..	51	C	XXVIII	
							1946–47 ..	64	C	XXIX	
							1947–48 ..	54	C	XXX	
1948–52 ..		18	a part.	159	4	46	1948–49 ..	50	C	I	
							1949–50 ..	52	C	II	
1952–58 ..		18	b part.	43	1	46	1950–51 ..	55	C	III	
							1951–52 ..	38	C	IV	
1943–56 ..		10	a part.	157	3	46	1952–53 ..	43	C	V	
							1953–54 ..	57	C	VI	Unsold.
							1954–55 ..	57	C	VII	
							1955–56 ..	28	C	VIII	
					(10) *Satyavedu Felling Series.*						
1942–45 ..	Satyavedu ..	7	d	165	3	53	1942–43 ..	54	C	XXVI	
							1943–44 ..	49	C	XXVII	
							1944–45 ..	54	C	XXVIII	
1945–47 ..		7	c	98	2	53	1945–46 ..	48	C	XXIX	
							1946–47 ..	58	C	XXX	
1947–51 ..		8	b part.	177	4	53	1947–48 ..	54	C	I	
							1948–49 ..	53	C	II	
							1949–50 ..	65	C	III	
							1950–51 ..	17	C	IV	
1951–53 ..	Satyavedu ..	8	a	121	2	53	1951–52 ..	67	C	V	
							1952–53 ..	51	C	VI	
							1953–54 ..	48	C	VII	
1953–56 ..		5	a	161	3	53					Unsold.
							1954–55 ..	52	C	VIII	Unslod.
1956–59 ..		5	b	135	3	55	1955–56 ..	—	C	IX	Do.

(11) *Paddaitipakam Felling Series.*

1942–46	..	Satyavedu	..	3	c	117	4	32	1942–43	..	32	C	IX	
									1943–44	..	27	C	X	
									1944–45	..	29	C	XI	
									1945–46	..	30	C	XII	
1946–49	..			3	d	91	3	32	1946–47	..	39	C	XIII	
									1947–48	..	28	C	XIV	
									1949–49	..	27	C	XV	
1949–50	..			3	e	25	1	25	1949–50	..	34	C	XVI	
1950–54	..			2	a	126	4		1950–51	..	33	C	XVII	
									1951–52	..	33	C	XVIII	
									1952–53	..	31	C	XIX	
									1953–54	..	41	C	XX	Unsold.
1954–57	..			2	b	104	3		1954–55	..	40	C	XXI	Do.
				1	a	136	4		1955–56	..		C	XXII	Do.

II. *Tiruvallur Range.*

(1) *Peradam Felling Series.*

1942–43	..	Ambakam	..	3	a part.	51	1	45	1942–43	..	44	C	XXVI	
1943–45	..			3	b part.	100	2	45	1943–44	..	49	C	XXVII	
									1944–45	..	5	C	XXVII	
									1944–45	..	60	C	XXVIII	
									1945–46	..	25	C	XXVIII	
1945–47	..			2	a	87	2	45	1945–46	..	51	C	XXIX	
									1946–47	..	47	C	XXX	
1947–50	..			1	a part.	131	3		1947–48	..	54	C	I	
									1948–49	..	45	C	II	
1950–52	..			1	b	89	2		1949–50	..	50	C	III	
									1950–51	..	40	C	IV	
									1951–52	..	48	C	V	
1952–54	..			2	b	131	3		1952–53	..	53	C	VI	
									1953–54	..	35	C	VII	
									1954–55	..	50	C	VIII	
1955–58	..			2	e	175	4		1955–56	..	47	C	IX	

(2) *Ambakkam Felling Series.*

1942–45	..	Ambakkam	..	14	a	154	3	46	1942–43	..	51	C	XXIII	
									1943–44	..	40	C	XXIV	
									1944–45	..	10	C	XXIV	
									1944–45	..	72	C	XXV	
1945–50	..			15	a	203	5	46	1945–46	..	54	C	XXVI	
									1946–47	..	48	C	XXVII	Part.
									1947–48	..	48	C	XXVIII	
									1948–49	..	48	C	XXIX	
									1949–50	..	32	C	XXX	
1950–54	..			14	b	200	4	46	1950–51	..	53	C	I	
									1951–52	..	46	C	II	
									1952–53	..	39	C	III	
									1953–54	..	69	C	IV	Unsold.
4–58	..			13	b	172	4		1954–55	..	41	C	V	Withdrawn as steep slopes.
									1955–56	..	47	C	VI	

Felling of fuel coupes in Fuel Working Circle (Nellore Working Plan)—**cont.**

TIRUVALLUR RANGE—*cont.*

Years.	Locality. Reserve.	Compartment.	Sub-compartment.	Area of sub-compartment.	Number of years feelings prescribed.	Average annual cut acres.	Year.	Area exploited.			Other details. (C = Coupes.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)			(10)
				(3) Pudukuppam Felling Series.							
1942–48 ..	Ambakkam ..	9	a	229	6	41	1942–43 ..	43	C	XXIV	
							1943–44 ..	47	C	XXV	
							1944–45 ..	50	C	XXVI	
							1945–46 ..	6	C	XXVI	
							1946–47 ..	40	C	XXVII	
							1946–47 ..	38	C	XXVIII	
							1947–48 ..	25	C	XXIX	
1945–52 ..		11	a	186	4	..	1948–49 ..	55		XXX	
							1949–50 ..	47	C	I	
							1950–51 ..	62	C	II	
							1951–52 ..	34	C	III	
1952–55 ..		11	b part.	111	3	..	1952–53 ..	43	C	IV	
							1953–54 ..	43	C	V	Unsold.
							1954–55 ..	43	C	VI	Do.
1955–58 ..		11	c part.	118	3	..	1955–56 ..	47	C	VII	Do.
				(4) Dasikuppam Felling Series.							
1942–45 ..	Ambakkam ..	7	c	106	3	41	1943–44 ..	44	C	XXIV	Arrear.
							1943–44 ..	35	C	XXV	
							1944–45 ..	28	C	XXVI	
							1945–46 ..	5	C	XXVI	
1945–46 ..		7	a	38	1	38	1945–46 ..	36	C	XXVII	
1946–47 ..		6	d	55	1	55	1946–47 ..	54	C	XXVIII	
1947–52 ..		6	a	223	5	41	1947–48 ..	47	C	XXIX	
							1948–49 ..	42	C	XXX	
1952–56 ..		4	a part.	150	4	38	1949–50 ..	43	C	I	
							1950–51 ..	42	C	II	
							1951–52 ..	54	C	III	
							1952–53 ..	41	C	IV	
								16	C	V	Withdrawn as on steep slopes.
								28	C	VI	Withdrawn as on steep slopes.
1956–59 ..		4	b	138	3	46	1953–54 to 1955–56.	31	C	VII	No demand.

(5) Vellore Felling Series.

1942-46 ..	Nagalapuram ..	12	b	128	4	30	1942-43 ..	32	C	XXVI	
							1943-44 ..	30	C	XXVII	
							1944-45 ..	2	C	XXVII	
							1944-45 ..	34	C	XXVIII	
							1945-46 ..	33	C	XXIX	
1946-50 ..		11	a	107	4	30	1945-46 ..	30	C	XXX	Advance Felling.
							1946-47 ..	26	C	I	
								29	C	II	
							1947-48 ..	26	C	III	
1950-52 ..		11	b	57	2	30	1948-49 ..	25	C	IV	
							1949-50 ..	40	C	V	
							1950-51 ..	30	C	VI	
							1951-52 ..	28	C	VII	
							1952-53 ..	35	C	VIII	
							1953-54 ..	40	C	IX	Unsold.
1955-56 ..		9	b	36	1	36	1954-55 ..	24	C	X	Unsold during 1954-55.
							1955-56 ..	24	C	X	
1958-59 ..		16	a	93	3	30	..	23	C	XI	

(6) Pelathemkona Felling Series.

1942-44 ..	Nagalapuram ..	13	d	75	2	24	1942-43 ..	39	C	XXV	
							1943-44 ..	38	C	XXVI	
							1944-45 ..	2	C	XXVI	
							1944-46 ..	27	C	XXVII	
							1945-46 ..	31	C	XXIX	Advance felling.
1946-47 ..		15	a part.	39	1	..	1946-47 ..	35	C and C I	XXX	
		16	b part.	39	1	..	1947-48 ..	32	C	II	
		16	d part.	38	1						
		14	a part.	40	1	—					
		15	b part.	40	1	..	1948-49 ..	33	C	III	
		16	a part.	39	1	..	1949-50 ..	35	C	IV	
		15	b part.	68	2	..	1950- 51 ..	41	C	V	
							1951-52 ..	28	C	VI	
		16	e part.	51	2	..	1952-53 ..	37	C	VII	
							1953-54 ..	19	C	VIII	
							1954-55 ..	16	C	IX	
							1955-56 ..	47	C	X	

(7) Ramagiri Felling Series.

1942-44 ..	Nagalapuram	7	a	77	2	33	1942-43 .. }	33 }	C	XXV
							1943-44 .. }	1 }		

Felling of fuel coupes in Fuel Working Circle (Nellore Working Plan)—**cont.**

TIRUVALLUR RANGE—*cont.*

Year.	Locality. Reserve.	Compartment.	Sub compartment.	Area of sub compartment.	Number of years feelings prescribed.	Average annual cut acres.	Year.	Area exploited.	Other details. (C = COUPES).
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7)	(9)	(10)
					(7) *Ramagiri Felling Series*—cont.				
1944–49 ..	Nagalapuram ..	5	b	179	5	32	1944–45 / 1945–46 ..	32 / 5	C XXVII
							1945–46 ..	30	C XXVIII
							1945–46 ..	32	C XXIX Advance felling.
							1946–47 ..	43	C XXX
								and 30.	and I.
							1947–48 ..	32	C II
1949–51 ..		5	d	61	2	..	1948–49 ..	40	C III
			a	61	2	..	1949–50 ..	34	C IV
							1950–51 ..	20	C V
							1951–52 ..	30	C VI
		6	a	140	4	..	1952–53 ..	32	C VII
							1953–54	37	C VIII
							1954–55 ..	39	C IX
						Unsold.	1955–56 ..	35	C X
					(8) *Jarukulodu Felling Series.*				
1942–45 ..	Nagalapuram Reserved Forest.	4	b	125	3	38	1942–43 ..	38	C XXII
							1943–44 .. / 1944–45 ..	35 / 1	C XXIII
1945–47 ..		2	a	88	2	44	1944–45 ..	42	C XXV
							1945–46 ..	42	
							1945–46 ..	39	C XXVI Advance felling.
1945–50 ..		2	b	106	3	..	1946–47 ..	33	C XXVII
							1946–47 ..	47	C XXVIII
							1947–48 ..	19	C XXIX

		1	a	67	2	....	1948–49 ..	44	C	XXX	
							1949–50 ..	39	C	I	
		2	c	160	4	....	1950–51 ..	44	C	II	
							1951–52 ..	48	C	III	
							1952–53 ..	30	C	IV	
							1953–54 ..	31	C	V	
		1	e	150	4	Unsold.	1954–55 ..	36	C	VI	
						Do.	1955–56 ..	36	C	VI	
							1955–56 ..	61	C	VII	
						(9) Krishnareddykona Felling Series.					
1942–46	.. Alikully ..	16	c	197	4	45	1943–44 ..	44	C	XIV	Arrear.
							1943–44 ..	46	C	XV	
							1944–45 ..	30 }	C	XVI	
							1945–46 ..	28 }			
							1945–46 ..	52	C	XVII	
1946–48	..	16	b	72	2	..	1946–47 ..	44	C	XVIII	
							1947–48 ..	56	C	XIX	
		16	a	146	3	..	1948–49 ..	41	C	XX	
		15	a	118	2	..	1949–50 ..	65	C	XXI	
							1950–51 ..	42	C	XXII	
1946–48	.. Alikully	14	a	49	1	..	1951–52 ..	57	C	XXIII	
		12	a	168	4	..	1952–53 ..	..		..	Not sold.
							1953–54 ..	45	C	XXV	Do.
							1954–55 ..	..	C	XXVI	Do.
							1955–56 ..	45	C	XXVI	
								42	C	XXVII	
						(10) Nakkalakona Fuel Series.					
1943–46	.. Alikully	7	a	92	4	20	1942–43 ..	5 }	C	I	
							1943–44 ..	15 }			
							1943–44 ..	19	C	II	
							1944–45 ..	17	C	III	
							1945–46 ..	27	C	IV	
1946–50	..	8	a	79	4	..	1946–47 ..	23	C	V	
							1947–48 ..	21	C	VI	
1950–54	..	8	b	77	4	..	1948–49 ..	22	C	VII	
							1949–50 ..	25	C	VIII	
							1950–51 ..	18	C	IX	
							1951–52 ..	18	C	X	
							1952–53 ..	27	C	XI	
							1953–54 ..	18	C	XII	Not sold.
							1954–55 ..	24	C	XIII	Do.
							1955–56 ..	24	C	XIII	Do.
954–57	..	8	c	52	3	..		33	C	XIV	

APPENDIX XII.

(Vide paragraph 155.)

Felling in Fuel Plantation Working Circle (Nellore Working Plan).

I. Kambakkam Series.

	Prescribed.				Done.				
Year.	*Name of reserve.*	*Compartment.*	*Sub-compartment.*	*Area in acres.*	*Year.*	*Locality.*	*Area in acres.*	*Kind.*	*Quantity.*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
									TONS.
1942–57	Kambakkam	5	b (part)	359	1942–43	Compartment 5, Sub-Compartment (b).	10·0	Firewood.	18·0
		4	b (part)		1943–44	Do.	10·5	Do.	22·5
		9	c (part)		1944–45	Do.	11·0	Do.	..
		10	b (part)		1945–46	Do.	10·5	Do.	..
		7	b		1946–47	Do.	6·0	Do.	19·0
	Kadur	6	a (part)		1947–48	Do.	20·0	Do.	..
	Ardur	6	b (part)		1948–49	Compartment 7, Sub-compartment (b)	15·0	* No yield of firewood.	
					1949–50	Do.	13·86	Do.	
					1950–51	Not done	..	..	..
					1951–52	Do.	..	..	..
					1952–53	Compartment 7 (b)	5·0	Firewood.	..
					1953–54	Not done	..	..	..
					1954–55	Do.	..	..	..
					1955–56	Do.	..	..	..

II. Satyavedu Series.

1942–57	Satyavedu	21	a and d	460	1942–43	Compartment 21 Sub-compartment (d)	10·0	*Firewood.	..
		20	b and c		1943–44	Do.	10·0	Do.	..
		19	a (part) & b (part).		1944–45	Do.	10·0	Do.	..
		18	a (part), b (part) and c (part).		1945–46	Do.	10·0	Do.	..
					1946–47	Do.	5·0	Do.	18·0
		17	a (part)		1947–48	Do.	15·0	Do.	..
		2	b (part) and d		1948–49	Do.	9·5	Do.	..
		3	a (part), b and c (part).		1949–50	Do.	13·0	Do.	..
		8	b (part)		1950–51	Not done	..	..	..
	Ambakkam	1	a (part)		1951–52	Do.	..	..	..
		3	a (part) and b (part).		1952–53	Compartment 21 (d)	5·0	..	..
					1953–54	Not done	..	..	..
		4	a (part)						
		11	b (part) and c (part).						
					1955–56	Do.	..	..	..

1942–57	Nagalapuram	16	a (part), b (part), c (part) and d (parts).	413	1942–43	Nagalapuram compartment 16 (*d*)	10·5	Firewood.	..
					1943–44	Do.	11·25	Do.	..
					1944–45	Do.	11·0	Do.	..
		15	a (part), b (part) and c (parts).		1945–46	Do.	14·0	Do.	..
					1946–47	Do.	8·0	Do.	42
		13	b (part)		1947–48	Do.	16·0	Do.	80
		1	b, d, and c (parts).		1948–49	Do.	13·2	Do.	..
		2	c (part) and d. ..		1949–50	Do.	15·0	Do.	..
	Alikuli	15	b, c, d and e ..		1950–51	Not done ..	..	..	..
		14	b		1951–52	Do,	..	..	..
		3	b		1952–53	Nagalapuram compartment 16 (*d*)	5·0	Firewood.	..
		4	a		1953–54	Not done ..	..	..	..
					1954–55	Do.	..	..	..
					1955–56	Do.	..	..	..

* Only lines were cut and the cut materials were burnt.
† Negligible cut materials used for burning and for fencing.

APPENDIX XIII.

(Vide paragraph 160.)

Details of annual average on the Kancha System of Grazing from 1942–43 *to* 1955–56 (***Nellore Working Plan***).

Name of the reserved forest.	*Kancha number.*	*Area of Kancha in acres.*	*Classification.*	*Total cow units allotted.*	*Area open to grazing.*	*Area closed to grazing.*	Incidence. *Buffalo.*	Incidence. *Cows.*	Incidence. *Sheep.*	*Total cow units.*	*Revenue realized.*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					A. SATYAVEDU RANGE.						RS. A. P.
Kadur Reserved Forest ..	1	609	Local	170	427	82	2	61	159	188	52 14 5
Do.	2	271	Do.	90	271	..	2	46	45	72	28 7 3
Do.	3	440	Do.	147	440	..	4	51	91	111	39 12 2
Do.	4	582	Do.	194	550	32	3	48	102	102	39 0 7
Do.	5	484	Do.	161	484	..	2	62	89	111	40 11 10
Ardur Reserved Forest ..	6	1,324	Do.	441	1,231	93	27	141	334	362	134 14 0
Do.	7	380	Do.	127	331	49	5	20	117	87	29 12 0
Do.	8	495	Do.	165	481	15	3	22	163	109	37 8 1
Do.	9	658	Do.	219	629	29	17	75	162	100	70 2 8
Kambakkam Reserved Forest ..	10	1,875	Do.	469	1,739	136	34	260	167	382	152 14 2
Do.	11	1,134	Do.	288	1,102	32	10	110	73	175	65 0 4
Do.	12	653	Do.	130	597	56	2	90	37	112	46 3 6
Do.	13	628	Do.	126	576	52	1	90	45	118	48 12 3
Do.	14	1,196	Do.	239	1,143	53	..	137	108	191	78 2 8
Satyavedu Reserved Forest ..	15	1,283	Do.	257	1,186	97	4	146	92	199	76 11 8
Do.	16	1,514	Do.	303	1,396	118	..	86	334	254	97 8 8
Do.	17	1,247	Do.	249	1,151	96	6	135	41	167	68 11 5
Do.	18	1,609	Do.	322	1,485	124	1	224	79	41	113 4 2
Do.	19	755	Do.	151	737	18	..	19	256	147	49 9 1
Do.	20	1,329	Do.	266	1,173	156	4	102	252	285	90 12 4
ambakkam Reserved Forest ..	40	1,694	Foreign ..	564	1,613	81	..	252	..	252	157 0 1

Details of annual average on the Kancha System of Grazing from 1942-43 to 1955-56 (Nellore Working Plan)—cont

B. TIRUVELLORE RANGE.

Name of the reserved forest.	Kancha number.	Area of Kancha in acres.	Clasification.	Total cow units allotted.	Area open to grazing	Area closed to grazing.	Incidence. Buffalo.	Incidence. Cows.	Incidence. Sheep.	Total cow units.	Revenue realized
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
											RS. A. P.
Nagalapuram Reserved Forest ..	21	1,330	Local	443	1,136	94	1	292	59	323	130 8 9
Do. ..	22	1,133	Do.	379	1,051	87	1	304	60	336	135 0 2
Do. ..	23	1,209	Do.	302	1,114	95	1	206	71	242	100 10 10
Do. ..	24	695	Do.	173	635	60	..	129	79	168	68 13 9
Do. ..	25	665	Do.	166	645	20	..	12	12	128	61 5 4
Ambakkam Reserved Forest ..	26	1,382	Local	276	1,267	115	..	96	113	156	57 12 10
Do ..	27	480	Do.	96	430	50	..	46	51	72	28 6 2
Do. ..	28	580	Do.	116	557	23	..	58	78	96	38 8 3
Do. ..	29	332	Do.	66	285	47	..	27	27	40	15 9 4
Do. ..	30	452	Do.	90	409	43	..	26	69	61	21 6 5
Do. ..	31	822	Do.	211	767	55	..	78	192	173	68 2 1
Do. ..	32	711	Do.	142	700	11	..	71	123	133	51 10 9
Do. ..	33	941	Do.	188	873	68	1	47	263	180	65 13 2
Allikulli Reserved Forest ..	34	1,248	Local	250	1,170	78	1	79	199	181	68 8 7
Do. ..	35	1,205	Do.	241	1,196	9	..	79	115	137	55 8 11
Do. ..	36	570	Do.	114	550	20	..	47	33	65	35 7 0
Do. ..	37	724	Do.	145	622	102	..	47	44	70	28 10 11
Do. ..	38	1,163	Do.	238	1,103	60	1	95	206	200	77 5 7
Do. ..	39	1,364	Do.	277	1,339	25	1	56	421	273	94 8 2

APPENDIX XIV.

(Vide paragraph 177.)

Charcoal Supply Miscellaneous Regulations (Nellore Working Plan).

SATHYAVEDU RANGE.

Reserve.	Prescribed. Compartment.	Prescribed. Sub-compartment.	Prescribed. Area of series.	Year.	Reserve.	Done. Compartment.	Done. Sub-compartment or coupe.	Done. Area felled.	Outturn. Kind.	Outturn. Quality in tons.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
					Allikulli I Series.				TONS.	GUNDS.
Allikulli	6	I	501	1943-44	.. Allikulli	6	I Part ..	39	Fu	245 0
	6	I Arrear.	501	1944-45	..	6	I Arrear.	15	Do	15 0
	6	II	501	1944-45	..	6	II	50	Do	..

	6	III		501	1945–46	..	6	III		44	Fuel ..	191	0
											Charcoal ..	8	0
	6	IV		501	1946–47	..	6	IV		57	Fuel	344	0
	6	V		501	1947–48	..	6	V		68	Do.	281	0
	6	VI		501	1948–49		6	VI		63	Charcoal ..	13	0
	6	VII		501	1949–50	..	6	VII		53	Fuel	171	10
	6	VIII		501	1950–51	..	6	VIII		55	Do.	224	25
	6	IX		501	1951–52	..	6	IX		46	Do.	107	8
	6	X		501	1952–53	..	6	X		36	.. ..		
					1953–54	..			Nil.				
					1954–55	..			Nil.				
					1955–56	..			Nil.				

Allikulli II Series.

Allikulli ..	5	I		574	1943–44	.. Allikulli	5	I		57	Not available.	..	
	5	II		574	1944–45	..	5	II		36	Do.	..	
		III		574	1945–46	..	5	III		20	Fuel	80	0
											Charcoal ..	30	0
		IV		574	1946–47	..	5	IV		54	Fuel	639	0
		V		574	1947–48	..	5	V		53	Do.	165	8
	5	VI		574	1948–49	..	5	VI		50	Charcoal ..	40	1
	5	VII		574	1949–50	..	5	VII		68	Fuel	91	20
	5	VIII		574	1950–51	..	5	VIII		62	Do.	225	0
	5	IX		574	1951–52	..	5	IX		94	Do.	140	20
	5	X		574	1952–53	..	5	X		80	Do.	216	20
					1953–54	..			Nil.				
					1954–55	..			Nil.				
					1955–56	..			Nil.				

Allikulli III Series.

Allikulli	4	I	Part. ..	509	1942–43	.. Allikulli	4	I	Part ..	35	Fuel and charcoal	114 (converted into 22 tons)	0
	4	I		509	1943–44	..	4	I	Arrear.	3	Fuel	60	0
	4	II	Part ..	509	1943–44	..	4	II	Part ..	32	Do. ..	61	0
	4	II	Arrear.	509	1944–45	..	4	II	Arrear.	25	Not available.	..	
	4	III		509	1944–45	..	4	III		58	Do.	..	
	4	IV		509	1945–46	..	4	IV		46	Fuel	113	0
											Charcoal ..	14	0
	4	V		509	1946–47	..	4	V		38	Fuel	25	0
	4	VI		509	1947–48	..	4	VI		50	Do.	110	0
	4	VII		509	1948–49	..	4	VII		57	Charcoal ..	25	20
	4	VIII		509	1949–50	..	4	VIII		51	Fuel	10	0
											Charcoal ..	26	30
	4	IX		509	1950–51	..	4	IX		49	Fuel	131	0
	4	X		509	1951–52	..	4	X		55	Do.	55	20
					1952–53	..			Nil.				
					1953–54	..			Nil.				
					1954–55	..			Nil.				
					1956–57	..			Nil.				

APPENDIX XV.

(Vide paragraph 190.)

Grazing revenue collected in ex-panchayat forests (Nellore Working Plan).

NELLORE WORKING PLAN.

Serial number and name of reserved forest.	1949–50.		1950–51.		1951–52.		1952–53.		1953–54.		1954–55.		1955–56.	
	Number of cows units.	Revenue realized.	Number of cows units.	Revenue realized.	Number of cows units.	Revenue realized.	Number of cows units.	Revenue realized.	Number of cows units.	Revenue realized.	Number of cows units.	Revenue realized.	Number of cows units.	Revenue realized.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		RS. A.		RS. A.		RS. A.		RS. A.		RS. A.		RS. A.		RS. A.
1 Nemalur	*	150 0	537	402 12	537	402 12	500½	373 14	144	105 8	295	73 12	719	179 12
2 Erumaivettipalayam ..	*	93 12	266	199 8	266	199 8	239½	179 10	266	66 8	463	113 4	561½	140 12
3 Alamathi	*	10 0	*	*	*	*	*	*	435	105 0	799½	199 14	861	215 4
4 Siruvada	*	190 8	537	402 12	537	402 12	26½	19 14	385½	247 6	295	73 12	Included in item No. 1.	
5 Ugumudi and Extension I and II.	*	196 0	392	196 0	392	196 0	392	196 0	385	96 4	533½	133 6	963	240 12
6 Irugulam and Extension I ..	*	206 4	413	309 6	413	309 6	305	240 12	456½	114 2	414	103 8	914½	229 0
7 Palavakkam and Extension II to VI.	*	520 8	872	571 8	872	571 2	194½	146 8	394½	254 2	304	76 0	474	193 8
8 Manali	*	225 0	677	338 8	677	338 8	478½	241 12	712	219 14	609½	152 6	1,367½	342 4
9 Vembudu	*	220 0	*	*	*	*	363½	431 6	403½	186 14	321	80 4	545	136 4
10 Mailapur	*	240 10	*	*	*	*	318	40 0	573	358 2	608½	152 2	657½	164 6
11 Senjiagaram	*	84 0	81·5	40 12	81·5	40 12	36	18 0	125	32 8	157	39 4	37	9 4
12 Pullarambakam Extension I and II.	*	105 0	*	*	*	*	87	65 4	146½	109 14	209	52 4	329½	82 6
3 Nayapakkam A and B ..	*	*	*	*	*	*	13	9 12	*	*	*	*	*	*

* Details not available.

APPENDIX XVI.

(Vide paragraph 196.)

Minor Forest produce in Tirumalai-Tirupathi Devasthanam Estate Forests.

Serial number and particulars of lease units.	*Fasli years.*			
	1358 (1948–49).	1359 (1949–50).	1360 (1950–51).	1361 (1951–52).
(1)	(2)	(3)	(4)	(5)
	RS. A.	RS. A.	A.	RS. A.
1 Avaram rela bark for the whole of Kachinad taluk	550 0	600 0	600 0	600 0
2 Minor forest produce in Kota firka villages (excluding manure, leaves, Kachinad taluk).	140 0	440 0	240 0	230 0
3 Minor forest produce, Chilamathur firka (Beedi leaves)	14 0	10 0	8 9	20 0
4 Laterite quarry in Chilemathur firka villages	50 0	52 0	41 0	128 0
5 Laterite quarry in Madarpakkam firka villages	64 0	47 0	18 4	114 0
6 Lime shell quarry in Arambakkam villages	260 0	260 0	242 0	240 0
7 Units for removal of earth manure leaves, dry fuel in head loads, boulders, jelly, sand stone, etc.—				
(a) Nandanam beat	Not available.		56 9	105 0
(b) Pulikondram			..	85 0
(c) Rajugunta			..	60 0
(d) Venollore and Thondambattu			..	96 0
(e) Saddikatimadugu and Bhoopatheswarapuram beats			..	165 0
(f) Departmental permit collections in Kachinad taluk			..	75 4
8 Minor forest produce, Bhoopatheswarapuram mango produce	67 0	8 0	51 0	Not leased.
9 Minor forest produce, Kanuikala Konga mango produce	96 0	30 0	89 0	Do.
10 Minor forest produce, Rajugunta (cashewnut produce)	2 0	4 0	3 4	Do.

APPENDIX XVII.

(Vide paragraph 236.)

Areas regenerated in Fuel Plantation Working Circle.

(CHINGLEPUT WORKING PLAN.)

Prescribed.				*Done.*		
Year.	*Reserve.*	*Compartment.*	*Area in acres.*	*Year.*	*Locality.*	*Area in acres.*
	(2)	(3)	(4)	(5)	(6)	(7)
			ACS.			ACS.
			Gudalur Planting Series.			
..	Gudalur Reserved Forest	Bit I	65·0	1949–50	Gudalur Reserved Forest ..	80·0
		Bit II	125·0	1950.51	.....	..
		Bit III	60·0	1951–52	Gudalur Reserved Forest Bit I ..	10·0
..	Senkundram Bit and II	Bit I	70·0	1952–53	Gudalur Reserved Forest ..	No work was done.
			45·0	1953–54		
		Bit II	60·0	1954–55		
		Bit III	20·0	1954–55		
		Total ..	445·0	1955–56		

Areas regenerated in Fuel Plantation Working Circle—cont.

(CHINGLEPUT WORKING PLAN)—*cont.*

Prescribed.					Done.	
Year. (1)	*Reserve.* (2)	*Compartment.* (3)	*Area in acre.* (4)	*Year.* (5)	*Locality.* (6)	*Area in acres.* (7)
			ACS.			ACS.
		Vandalur Planting Series.				
..	Vandalur Reserved Forest	Bit I	150·0	1949–50	Kumli Reserved Forest	85·0
	Unamancheri Reserved Forest	Bit I	75·0	1950–51	Do.	..
	Kumli Reserved Forest	....	300·0	1951–52	Vandalur Bit I	10·0
				1952–53	Do.	10·0
		Total ..	525·0	1953–54	No work was done	..
				1954–55		
				1955–56		
		Thaiyur Planting Series.				
..	Thaiyur Reserved Forest	Bit II	180·0	1949–50	Thaiyur Reserved Forest ..	40·0
		Bit III	200·0	1950–51	....	..
		Bit I	120·0	1951–52	No work was done	..
..	Sonalur Reserved Forest	Bit I	100·0	1952–53	Sonalur Reserved Forest Bit I ..	10·0
				1953–54	No work was done.	..
		Total ..	600·0	1954–55		
				1955–56		

APPENDIX XVIII.

(Vide paragraph 296.)

List of Roads.

SATYAVEDU RANGE.

Serial number and description. (1)	*Year of construction.* (2)	*Capital cost.* (3)	*Length.* (4)	*Width.* (5)	*Nature of road.* (6)
		RS.	M. F. CH.	FEET.	
1 Varadayapalem-Thanthipandal road	1993	602	5 4 0	10	Gravelled.
2 Thanthipandal-Kambakkam Ghat road	1893	494	4 4 0	10	Earthern.
3 Satyavedu-Ittipakkam road	1913–14 and 1925–26	504	4 3 2	12	Do.
4 Satyavedu-Rajagunta road	1917–18 and 1920–21	545	4 0 0	18	Do.
5 Ambakkam Main road	1917–18	210	1 7 0	12	Do.
6 Sayalkona branch road	1917–18	182	1 0 0	12	Do.
7 Kakalakonda branch road	1917–18	180	1 0 0	12	Do.
8 Ambakkam subsidiary road	1932–33	30	0 6 0	12	Do.
9 Pudukuppam road	1928–29	170	1 7 0	12	Do.
10 Musalaya kunta road	1932–33	144	2 2 0	12	Do.

11 Nellichela-ma road	1932-33	235	2 4 0	12	Do.
12 Akkachampalem-Kambakkam cart track	Not known	9	2 7 6	12	Do.
13 Allialva-Kadumalagundam bridle path	1909	330	2 4 0	10	Do.
14 Kadumalagundam-Neredu chalama bridle path	1919	Free of cost by fire patrols.	0 3 3	10	Do.
15 Bridle-path from Hill bungalow to G.T. Station	1919	Free of cost by fire patrols and V.T. School.	0 2 5	6	Do.
16 Allikalva-Thapalamadugu bridle path	1919	Do.	2 4 0	10	Do
17 Pogadamani fire line path	1937-38	125	1 2 0	4	Do.
18 Kadamalagundam Hill Bungalow cart track	1925	500	0 6 4	12	Do.
TIRUVALLUR RANGE.					
1 Peradam subsidiary road	1932-33	90	1 2 0	12	Earthern.
2 Vellur-Pelathakona road	1919-20	535	3 6 0	18	Do.
3 Ramagiri-Jarakuloddu road	1919-21	536	4 7 0	18	Do.
4 Approach road to Nagalapuram rest house	1924-25	166	0 6 0	10	Do.
5 Allikuli road	Not known	488	27 0 0	12	Do.
6 Ramancheri road	Do.	Not known	..	..	
7 Dasikuppam cart track	1937-38	43	1 2 0	12	Do.
8 Peradam road	1919-20	455	2 4 0	12	Do.

APPENDIX XIX.

(Vide paragraph 297.)

List of Buildings.

Number and locality. (1)	Name of building. (2)	Year of construction. (3)	Cost. (4)	Remarks. (5)
SATYAVEDU RANGE.			RS.	
1 Satyavedu	Forest Range Officer's quarters including out-houses.	1889-90	2,410	Tiled roof with flat pan tiles, concrete floor, bricks in lime mortar walls.
	Latrine	1953-54	209	Walls rough stone in lime mortar, concrete floor.
	Rest house and out-house	1894-95	1,885	'B' class. Tiled roof with flat and pan tiles. Concrete floor plastered with chunam. Brick walls in clay.
	Latrine rest house	1925-26	13	Mud wall. Earthern floor.
Kambakkam	Inspection bungalow and extension Kambakkam hill.	1912-13 and 1936-37 37-38.	3,484	'B' Class tiled roof with flat and pan tiles concrete floor plastered with cement. Mud walls.
	Outhouses to Inspection bungalow and extension Kambakkam hill.	1937-38 and 1918-19	506	Tiled roof. Earthern floor. Mud walls.
	Latrine to inspection bungalow and extension Kambakkam hill.	1937-38	61	Roofing with cement sheet. Earthern floor, mud walls.
	Subordinate lines	1921-22 and 1923-24	5,133	Mangalore tiled roof, concrete floor, brick in lime mortar walls for one Forester, three Forest Guards and three watchers.
Enadivettu	Inspection shed Enadivettu	1904-05 and 1928-29	383	Thatched roof, mud walls, concrete flooring.
	Kitchen Enadivettu	1927	28	Thatched roof, mud walls, mud floor.
	Stables and motor shed, Enadivettu	1928	8	Thatched roof, mud walls, mud floor.

APPENDIX XIX—*cont.*

List of Buildings—cont.

Number and locality. (1)	*Name of building.* (2)	*Year of construction.* (3)	*Cost.* (4) RS.	*Remarks.* (5)
		TIRUVALLUR RANGE.		
2 Nagalapuram	Rest house without house	1889–90	955	'B' class tiled roof with flat tiles, concrete floor with chunam mortar, brick wall in clay.
Allikali	Store shed	1936–37	10	Thatched roof, mud walls.
	Rest house	1916	1,777	Concrete floor, 'B' class, brick walls, asbestos.
	Outhouse	1916	830	Mud floor.

APPENDIX XX.

(Vide paragraph 298.)

List of wells, tanks, kurtas and springs.

Number and description. (1)	*Locality.* (2)	*Year of construction.* (3)	*Cost.* (4) RS.
	SATYAVEDU RANGE.		
1 Masonry well	Rest house compound, Satyavedu	1925	100
2 Do.	Range Officer's quarters, Satyavedu	1890	200
3 Well	Subordinates Quarters, Kambakkam. Details are not available.		
4 Step-well	Natabhavi in Satyavedu reserved forest	Not known.	
5 Do.	Nellichelama in Satyavedu reserved forest	Do.	
6 Kunta	Polinayadukunta in Kambakkam reserved forest No. 12	1886	400
7 Do.	Chaki revukunta in Kambakkam reserved forest Kancha No. 10.	1886	300
8 Do.	Machalammakunta Kancha No. 10	1886	250
9 Do.	Anandapillacheruvu in Machalammakunta Kancha No. 10	1886	250
10 Do.	Settikolam in Arudur reserved forest Kancha No. 7	1886	300
11 Do.	Venkammakolam in Arudur reserved forest Kancha No. 6	1886	300
12 Do.	Enamalakunta in Kadur resereved forest Kancha No. 22	1886	300
13 Do.	Yerramattikolam in Satyavedu reserved forest Kancha No. 20.	1886	200
14 Do.	Annappanaidukunta Kancha No. 11	1886	400
15 Do.	Irsankutta in Arudur reserved forest Kancha No. 6	1886	300

16 Spring	Allikalavai in Kambakkam reserved forest	Natural.		
17 Do.	Nereduchelama in Kambakkam reserved forest	Do.		
18 Do.	Kodumalagundam in Kambakkam reserved forest	Do.		
19 Do.	Thappal-madugu in Kambakkam reserved forest	Do.		
20 Do.	Chinnabhavi in Satyavedu reserved forest	Do.		
21 Tank	Allikulam in Kambakkam reserved forest	1897		48

TIRUVALLUR RANGE.

1 Masonry well	Rest house compound Nagalapuram	1890		150
2 Kunta	Yeganapalayam in Nagalapuram reserved forest Kancha No. 22.	1887		200
3 Do.	Musalayakolam in Satyavedu reserved forest Kancha No. 20.	1887		100
4 Do.	Thibbalagunta in Nagalapuram reserved forest Kancha No. 24.	1887		250
5 Kunta	Lothagunta in Nagalapuram reserved forest Kancha No. 22.	1887		300
6 Do.	Sundarakolam in Nagalapuram reserved forest Kancha No. 22	1887		200
7 Do.	Mungakolam in Nagalapuram reserved forest Kancha No. 21.	1887		250
8 Do.	Nanalkolam in Nagalapuram reserved forest Kancha No. 22.	1887		200
9 Do.	Pudukolam in Allikuli reserved forest Kancha No. 37	1887		200
10 Do.	Yerikolam in Allikuli reserved forest Kancha No. 38	1887		250
11 Spring	Pelatrukona in Nagalapuram reserved forest	Natural.		
12 Do.	Pillar Dona in Nagalapuram reserved forest	Do.		
13 Do.	Koneru near Avanasiamman Koil in Nagalapuram reserved forest.	Do.		
14 Do.	Andigavi, Nagalapuram reserved forest	Do.		
15 Do.	Peria dona, Allikuli reserved forest	Do.		

APPENDIX XXI.

(Vide Paragraph 301.)

Details of Revenue and Expenditure for the former Chingleput Forest Division.

Particulars. (1)	Panchayat. (2)	Extension of Casuarina. (3)	Ordinary areas. (4)	Ex-Zamin forests. (5)	Total. (6)
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
		1947–48.			
(a) Revenue.					
A. Removals by Government agency—					
1 Firewood and charcoal	....	522 0 0	....	....	522 0 0
2 Sandalwood	....	....	....	....	....
3 Other produce	....	53 12 0	....	....	53 12 0
B. Removals by consumers and purchasers—					
1 Timber	....	2,569 4 0	....	....	2,569 4 0
2 Firewood and charcoal	....	....	....	....	....
3 Grazing and fodder and grass	....	6,193 2 0	....	....	6,194 2 0
C. Drift and waifwood	....	73 15 0	....	....	73 15 0
D. Miscellaneous	....	5,775 9 0	....	....	5,775 9 0
Total	....	16,643 12 0	....	....	16,643 12 0

APPENDIX XXI—*cont.*

Details of Revenue and Expenditure for the former Chingleput Forest Division—cont.

Particulars. (1)	*Panchayat.* (2)	*Extension of Casuarina.* (3)	*Ordinary areas.* (4)	*Ex-Zamin forests.* (5)	*Total.* (6)
(*a*) *Revenue*—cont.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
		1948–49.			
A. Removals by Government agency—					
1 Firewood and charcoal	....	822 6 0	26 12 0	....	853 12 0
2 Sandalwood	....	....	....	....	....
3 Other produce	....	19 6 0		....	19 6 0
B. Removals by consumers and purchasers—					
1 Timber	....	....	....	....	....
2 Firewood and charcoal	....	2,182 15 0	32,711 13 0	....	34,894 12 0
3 Grazing and fodder grass	....	7,694 6 0	2,402 9 0	....	10,096 15 0
4 Other produce	....	1,851 11 0	310 15 0	....	2,162 10 0
C. Drift and waifwood	....	126 9 0	161 9 3	....	288 2 3
D. Miscellaneous	....	8,377 1 0	2,305 8 6	....	10,682 9 6
E. Refunds	....	....	....	....	....
Total ..	....	21,078 6 0	37,919 2 9	....	58,997 8 9
		1949–50.			
A. Removals by Government agency—					
1 Firewood and charcoal	....	109 8 0	73 5 0	....	182 13 0
2 Sandalwood	....	....	....	....	....
3 Other produce	....	342 1 0	....	....	342 1 0
B. Removals by consumers and purchasers—					
1 Timber	....	5 1 0	....	....	5 1 0
2 Firewood and charcoal	....	4,466 10 0	44,092 2 0	....	48,558 12 0
3 Grazing and fodder grass	....	28,294 4 0	4,524 5 0	....	32,818 9 0
4 Other produce	....	9,262 13 0	653 7 0	....	9,916 4 0
C. Drift and waifwood	....	114 15 0	140 4 0	....	255 3 0
D. Miscellaneous	....	14,773 14 0	2,918 0 0	....	17,691 14 0
E. Refunds	....	....	....	....	....
Total ..	....	57,369 2 0	52,401 7 0	....	1,09,770 9 0
		1950–51.			
A. Removals by Government agency—					
1 Firewood and charcoal	....	6 0 0	7 8 0	....	13 8 0
2 Sandalwood	....	....	....	....	....
3 Other produce	....	28 0 0	18 5 6	....	46 5 6

B. Removals by consumers and purchasers—					
1 Timber	....	994 0 0	....	....	994 0 0
2 Firewood and charcoal	....	11,611 10 0	51,267 6 6	....	62,879 0 6
3 Grazing and fodder grass	....	17,163 8 6	2,669 2 0	....	19,832 10 6
4 Other produce	....	4,454 10 6	953 6 7	....	5,408 1 1
C. Drift and waifwood	....	203 7 0	113 14 3	....	317 5 3
D. Miscellaneous	....	42,984 12 3	2,947 10 0	....	45,932 6 3
					1,35,423 5 1
E. Refunds	....	178 10 9	....	....	178 10 9
Total ..	....	77,267 9 6	57,977 4 10	....	1,35,244 10 4
		1951–52.			
A. Removals by Government agency—					
1 Firewood and charcoal	....	21 2 0	37 0 0	....	58 2 0
2 Sandalwood	....	....	....	....	....
3 Other produce	....	150 8 0	15 0 0	....	165 8 0
B. Removals by consumers and purchasers—					
1 Timber	....	2,511 10 0	54,859 15 3	....	57,371 9 3
2 Firewood and charcoal	....	2,511 10 0	54,759 15 3	....	57,371 9 3
3 Grazing and fodder grass	....	15,200 7 0	3,176 2 0	....	18,376 9 0
4 Other produce	....	1,117 14 0	292 12 1	....	1,410 10 1
C. Drift and waifwood	....	202 2 9	345 2 6	....	547 5 3
D. Miscellaneous	....	70,915 5 0	4,045 15 10	318 0 0	75,279 4 10
E. Refunds	....	134 8 0	....	....	....
		0 8 9			1,53,209 0 5
Total ..	....	134 0 0	62,771 15 8	318 0 0	134 8 0
					1,53,074 8 5
		1952–53.			
A. Removals by Government agency—					
1 Firewood and charcoal	23 4 0	242 4 0	80 0 0	....	345 8 0
2 Sandalwood	....	....	....	....	....
3 Other produce	....	35 2 0	....	....	35 2 0
B. Removals of consumers and purchasers—					
1 Timber	....	....	....	....	....
2 Firewood and charcoal	6,661 10 0	2,917 10 6	38,655 14 0	....	48,235 2 6
3 Grazing and fodder grass	28,707 9 0	12,330 4 6	3,317 7 0	....	44,355 4 6
4 Other produce	3,027 10 0	1,921 8 6	223 8 0	....	5,172 10 6
C. Drift and waifwood	309 11 0	192 15 6	48 3 0	....	550 13 6
D. Miscellaneous	19,802 8 0	5,244 14 1	3,185 10 0	....	2,933 0 1
E. Refunds	....	179 0 0	....	....	....
Total ..					

APPENDIX XXI—*cont.*

Details of Revenue and Expenditure for the former Chingleput Forest Division—cont.

Particulars. (1)	Panchayat. (2)	Extension of Casuarina. (3)	Ordinary areas. (4)	Ex-Zamin forests. (5)	Total. (6)
	Rs. A. P.	Rs. A. P.	Rs. A. R.	Rs. A. P.	Rs. A. A.
		1953–54.			
A. Removals by Government agency—					
1 Firewood and charcoal	23 0 0	1,916 2 0	3 0 0	....	1,942 12 0
2 Sandalwood	....	....	....	....	....
3 Other produce	....	2 12 0	2 8 0	....	5 4 0
B. Removals by consumers and purchasers—					
1 Timber	5 14 0	26 0 0	....	....	31 14 0
2 Firewood and charcoal	2,685 3 0	38,842 8 0	23,482 3 0	....	65,009 14 0
3 Grazing and fodder and grass	18,003 14 0	8,788 15 0	2,050 2 0	....	28,142 15 0
4 Other produce	1,666 4 0	1,043 5 0	560 12 0	....	3,270 5 0
C. Drift and waifwood	543 0 0	137 3 0	488 7 0	....	1,168 11 0
D. Miscellaneous	17,380 3 0	5,028 1 0	2,881 8 0	....	25,289 12 0
E. Refunds	....	171 0 0	....	....	171 0 0
Total	40,307 6 0	171 0 0	....	....	171 0 0
		1954–55.			
A. Removals by Government agency—					
1 Firewood and charcoal	....	312 0 0	....	....	312 0 0
2 Sandalwood	....	....	....	....	....
3 Other produce	....	117 0 0	....	....	117 0 0
B. Removals by consumers and purchasers—					
1 Timber	....	....	....	....	....
2 Firewood and charcoal	987 0 0	15,830 0 0	7,856 0 0	....	1,65,673 0 0
3 Grazing and fodder grass	20,856 0 0	9,566 0 0	2,812 0 0	....	33,234 0 0
4 Other produce	3,199 0 0	1,821 0 0	792 0 0	....	5,812 0 0
C. Drift and waifwood	614 0 0	135 0 0	80 0 0	....	829 0 0
D. Miscellaneous	11,710 0 0	5,689 0 0	3,475 0 0	....	20,874 0 0
E. Refunds	....	100 0 0	....	....	100 0 0
Total	37,366 0 0	1,74,570 0 0	15,015 0 0	....	2,26,951 0 0
		100 0 0			100 0 0
		1,74,470 0 0			2,26,851 0 0
		1955–56.			
A. Removals by Government agency—					
1 Firewood and charcoal	....	260 8 0	....	....	260 8 0
2 Sandalwood	61 0 0	....	....	....	61 0 0
3 Other produce	2 0 0	30 0 0	....	....	32 0 0
B. Removals by consumers and purchasers—					
1 Timber	....	....	....	....	....
2 Firewood and charcoal	5,967 11 0	61,321 4 0	30,664 13 0	145 0 0	98,008 12 0
3 Grazing and fodder grass	24,692 10 0	14,671 14 0	2,297 4 0	21 4 0	41,683 0 0
4 Other produce	12,378 5 0	3,033 2 0	612 1 0	160 8 0	16,184 0 0

C. Drift and waifwood	609 1 0	315 8 0	141 8 0	40 10 0	1,106 11 0
D. Miscellaneous	14,102 11 0	9,599 11 0	3,758 0 0	1,956 0 0	29,417 4 0
E. Refunds	....	....	348 0 0	....	348 0 0
Total ..	57,813 6 0	89,231 15 0	348 0 0	2,323 11 0	348 0 0
		1947–48			
A. Conservancy and Works—					
(a) Removal by Government agency—					
1 Timber	....	....	....	....	....
2 Firewood and charcoal	....	....	....	....	....
3 Bamboo	....	....	....	....	....
4 Sandalwood	....	....	....	....	....
5 Other produce	....	....	....	....	....
(b) Removal by consumers and purchasers	....	8,669 10 0	....	....	8,669 0 0
(c) Stores, tools and plants	....	888 6 0	....	....	888 6 0
(d) Roads and bridges	....	....	....	....	....
(e) Rates and Taxes	....	....	....	....	....
(f) Buildings	....	....	....	....	....
(g) Regeneration—					
1 General	....	1,06,472 15 0	....	....	1,06,472 15 0
2 Development schemes	....	....	....	....	....
(h) Fire protection	....	....	....	....	....
(i) Other works	....	163 0 0	....	....	163 0 0
Total for conservancy and works ..	....	1,16,193 15 0	....	....	....
B. Establishment—					
(a) Pay	....	62,795 2 0	....	....	62,793 2 0
(b) Allowances and Monoraria	....	37,769 14 0	....	....	37,769 14 0
(c) Contingencies	....	4,394 12 0	....	....	4,394 12 0
Total for establishment ..	....	1,04,959 12 0	....	....	....
				Grand total ..	22,153 11 0
		1948–49.			
A. Conservancy and Works—					
(a) Removal by Government agency—					
1 Timber	....	35 0 0	....	....	35 0 0
2 Firewood and charcoal	....	....	....	....	....
3 Bamboo	....	....	....	....	....
4 Sandalwood	....	....	....	....	....
5 Other produce	....	....	....	....	....
(b) Removal by consumers and purchasers	....	11,044 8 0	6,895 15 0	....	17,940 7 0
(c) Stores, tools and plants	....	29,751 9 0	4 10 0	....	29,756 3 0
(d) Roads and bridges	....	....	1,266 13 0	....	1,266 13 0
(e) Rates and taxes	....	....	20 0 0	....	20 0 0
(f) Buildings	....	21 0 0	1,260 7 0	....	1,281 7 0
(g) Regeneration—					
1 General	....	33,266 9 0	953 4 0	....	34,219 13 0
2 Development schemes	....	....	....	....	....
(h) Fire protection	....	....	88 0 0	....	88 0 0
(i) Other works	....	201 0 0	....	....	201 0 0
Total for conservancy and works ..	....	74,319 10 0	10,489 1 0	....	....

APPENDIX XXI—*cont.*

Details of Revenue and Expenditure for the former Chingleput Forest Division—cont.

Particulars. (1)	*Panchayat.* (2)	*Extension of Casuarina.* (3)	*Ordinary.* (4)	*Estate forests.* (5)	*Total.* (6)
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
		1948–49.			
B. Establishment—					
(a) Pay	....	58,400 9 0	7,501 12 0	....	65,902 5 0
(b) Allowances and Honoraries	....	39,192 3 0	6,146 9 0	....	45,338 12 0
(c) Contingencies	....	3,743 10 0	98 8 0	....	3,842 2 0
Total for Establishment ..	....	1,01,336 6 0	13,746 13 0	....	....
				Grand total ..	1,99,891 14 0
		1949–50.			
A. Conservancy and Works—					
(a) Removal by Government agency—					
1 Timber					
2 Firewood and charcoal	....	....	....	....	....
3 Bamboo	....	....	....	....	....
4 Sandalwood	....	....	....	....	....
5 Other produce	....	....	....	....	....
(b) Removal by consumers and purchasers	3,393 10 0	14,047 7 0	5,135 12 6	....	22,576 13 6
(c) Stores, tools and plants	....	3,666 0 0	50 0 0	....	3,716 0 0
(d) Roads and bridges	....	....	1,310 13 0	....	1,310 13 0
(e) Rates and taxes	....	....	....	....	....
(f) Buildings	....	54 7 0	1,095 2 0	....	1,149 9 0
(g) Regeneration—					
1 General	....	42,932 8 6	1,041 11 0	....	43,974 3 6
2 Development schemes	....	....	....	....	....
(h) Fire protection	....	113 11 0	88 0 0	....	201 11 0
(i) Other works	....	614 3 0	171 0 0	....	785 3 0
Total ..	3,393 10 0	61,428 4 6	8,892 6 6	....	....
B. Establishment—					
(a) Pay	4,052 0 0	49,478 0 0	7,122 2 0	....	60,652 2 0
(b) Allowances and honorarias	3,147 5 0	36,876 3 0	6,472 12 0	....	46,495 4 0
(c) Contingencies	....	5,933 11 9	37 3 0	....	5,970 14 9
Total ..	7,199 5 0	92,286 14 9	13,632 1 0	....	....
				Grand total ..	1,86,732 9 9

1950-51.

A. Conservancy and works—					
(a) Removal by Government agency—					
1 Timber	....	....	....	....	....
2 Firewood and charcoal	....	....	....	....	....
3 Bamboo	....	....	....	....	....
4 Sandalwood	....	....	....	....	....
5 Other produce	....	....	....	....	....
(b) Removal by consumers and purchasers	6,140 8 0	12,672 4 0	3,876 1 0	....	22,688 13 0
(c) Stores, tools and plants	....	282 15 9	....	....	282 15 9
(d) Roads and bridges	....	....	95 0 0	....	95 0 0
(e) Rates and taxes	....	....	....	....	....
(f) Buildings	....	7 0 0	629 12 0	....	636 12 0
(g) Regeneration—					
1 General	....	32,933 15 0	142 0 0	....	33,075 15 0
2 Development Schemes	....	....	....	....	....
(h) Fire protection	....	....	88 2 0	....	88 2 0
(i) Other works	....	....	....	....	....
	6,140 8 0	45,896 2 9	4,830 15 0	....	....
B. Establishment—					
(a) Pay	8,476 15 0	44,758 11 0	6,817 13 0	....	60,053 7 0
(b) Allowances and Honoraria	6,609 3 0	32,068 15 0	5,585 1 0	....	44,263 3 0
(c) Contingencies	....	5,573 12 9	38 7 6	....	5,612 4 3
Total ..	15,086 2 0	82,401 6 9	12,441 5 6	....	....
				Grand total ..	1,66,796 8 0

1951-52.

A. Conservancy and Works—					
(a) Removal by Government agency—					
1 Timber	....	....	....	....	....
2 Firewood and Charcoal	....	....	....	....	....
3 Bamboo	....	....	....	....	....
4 Sandalwood	....	....	....	....	....
5 Other Products	....	....	....	....	....
(b) Removal by consumers and purchasers	8,966 1 0	10,121 9 0	3,989 11 0	1,223 9 0	24,300 14 0
(c) Stores, Tools and Plants	....	292 10 0	4,625 15 9	....	4,918 9 0
(d) Roads and Bridges	....	....	1,878 9 0	....	1,878 9 0
(e) Rates and taxes	....	....	....	....	....
(f) Buildings	....	370 12 0	1,202 12 3	....	1,573 8 3
(g) Regeneration—					
1 General	....	21,905 14 0	1,142 3 0	....	23,048 1 0
2 Development Schemes	....	....	....	....	....
(h) Fire protection	....	....	88 0 0	....	88 0 0
(i) Other Works	....	1,315 11 0	102 0 0	....	1,417 11 0
Total ..	8,966 1 0	34,006 8 0	13,029 2 0	1,223 9 0	....

APPENDIX XXI—*cont.*

(Vide Paragraph Number 301.)

Details of Revenue and Expenditure for the former Chingleput Forest Division—cont.

Particulars.	*Panchayat.*	*Extension of Casuarina.*	*Ordinary areas.*	*Ex-Zamin forests.*	*Total.*
(1)	(2)	(3)	(4)	(5)	(6)
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
B. Establishment—					
(a) Pay	11,423 14 0	39,946 1 0	6,855 3 0	839 5 0	59,064 7 0
(b) Allowances and honorarias	9,304 15 0	31,104 4 0	5,955 14 0	804 4 0	47,169 5 0
(c) Contingencies	13 12 0	5,435 3 6	36 15 0	....	5,485 14 6
Total	2,074 9 0	76,485 8 6	12,848 0 0	1,643 9 0	1,68,944 14 9
				Grand total	168,944 14 9

1952–53.

Particulars.	*Panchayat.*	*Extension of Casuarina.*	*Ordinary areas.*	*Ex-Zamin forests.*	*Total.*
A. Conservancy and works—					
(a) Removal by Government agency—					
1 Timber	....	....	....	....	....
2 Firewood and charcoal	....	....	....	....	....
3 Bamboo	....	....	....	....	....
4 Sandal wood	....	....	....	....	....
5 Other Produce—					
(b) Removal by consumers and purchasers	9,642 0 0	10,759 14 0	7,440 13 0	....	27,842 11 0
(c) Stores, Tools and Plants	....	425 0 0	143 4 0	....	568 4 0
(d) Roads and bridges	....	....	1,285 13 0	....	1,285 13 0
(e) Rates and taxes	....	....	....	....	....
(f) Buildings	....	255 0 0	1,996 12 0	....	2,251 12 0
(g) Regeneration—					
1 General	....	18,088 0 0	595 14 0	....	18,683 14 0
2 Development Schemes	....	....	....	....	....
(h) Fire protection	....	....	88 0 0	....	88 0 0
(i) Other works	....	2,185 4 0	99 0 0	....	2,284 4 0
Total	9,642 0 0	31,713 2 0	11,649 8 0	....	....
B. Establishments—					
(a) Pay	11,369 3 0	45,021 3 0	11,452 6 0	....	67,842 12 0
(b) Allowances and Honorarias	9,679 5 0	34,253 5 0	10,430 2 0	....	54,362 12 0
(c) Contingencies	72 14 0	6,582 14 0	31 13 0	....	....
Total	21,121 6 0	85,857 6 0	21,914 5 0	....	....
				Grand total	181,897 11 0

1953-54.

A. Conservancy and works—					
(a) Removal by Government agency—					
1 Timber	....	....	....	....	....
2 Firewood and charcoal	....	1,968 8 0	....	....	1,968 8 0
3 Bamboo	....	....	....	....	....
4 Sandalwood	....	....	....	....	....
5 Other produce	....	....	....	....	....
(b) Removal by consumers and pur hasers	9,553 10 0	12,246 9 0	7,531 13 0	....	2,93,332 0 0
(c) Stores tools and plants	....	1,955 9 0	88 12 0	....	2,044 5 0
(d) Roads and Bridges	....	....	2,187 10 0	....	2,187 10 0
(e) Rates and taxes	....	....	....	....	....
(f) Buildings	....	104 0 0	3,119 3 0	....	3,223 3 0
(g) Regeneration—					
1 General	10,151 5 0	15,061 2 0	5,980 5 0	....	31,192 12 0
2 Development schemes	....	....	....	....	....
(h) Fire protection	....	....	58 0 0	....	58 0 0
(i) Other works	698 0 0	1,004 4 0	101 0 0	....	1,803 4 0
	20,402 15 0	32,340 0 0	19,066 11 0	....	....
B. Establishment—					
(a) Pay	12,646 10 0	51,741 6 0	10,740 5 0	....	75,128 5 0
(b) Allowances and honorarias	10,633 9 0	37,263 4 0	9,798 5 0	....	57,695 2 0
(c) Contingencies	107 10 0	6,740 6 0	25 7 0	....	6,873 7 0
Total	23,387 13 0	95,745 0 0	20,564 1 0	....	....
				Grand total	2,11,506 8 0

1954-55.

A. Conservancy and works—					
(a) Removal by Government agency—					
1 Timber	....	....	....	....	....
2 Fire wood and charcoal	....	109 0 0	....	....	109 0 0
3 Bamboo	....	....	....	....	....
4 Sandalwood	....	....	....	....	....
5 Other produce	....	52 0 0	3,721 0 0	....	3,773 0 0
(b) Removal by consumers and purchasers	9,712 0 0	13,787 0 0	4,265 0 0	....	27,764 0 0
(c) Stores, Tools and plants	....	1,050 0 0	1,602 0 0	....	2,652 0 0
(d) Roads and Bridges	....	....	....	....	....
(e) Rates and taxes	....	....	....	....	....
(f) Buildings	....	154 0 0	1,745 0 0	....	1,899 0 0
g) Regeneration	....	....	....	....	....
1 General	....	....	12,808 0 0	....	1,2808 0 0
2 Development schemes	....	....	....	....	....
(h) Fire protection	....	....	127 0 0	....	127 0 0
(i) Other works	....	905 0 0	27 0 0	....	932 0 0
Total	9,712 0 0	16,057 0 0	24,295 0 0	....	....
B. Establishment—					
(a) Pay	12,421 0 0	50,346 0 0	10,711 0 0	....	73,478 0 0
(b) Allowances and Honorarias	10,426 0 0	36,233 0 0	9,361 0 0	....	56,020 0 0
(c) Contingencies	100 0 0	8,254 0 0	70 0 0	....	8,424 0 0
Total	22,947 0 0	94,833 0 0	20,142 0 0	....	
				Grand total	1,87,986 0 0

APPENDIX XXI—*cont.*

Details of Revenue and Expenditure for the former Chingleput Forest Division—cont.

Particulars. (1)	Panchayat. (2)	Extension of Casuarina. (3)	Ordinary areas. (4)	Estate forests. (5)	Total. (6)
		1955–56.			
A. Conservancy and works—					
(a) Removal by Government agency—	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
1 Timber	....	....	....	....	....
2 Firewood and charcoal	....	35 0 0	....	....	35 0 0
3 Bamboo	....	....	....	....	....
4 Sandalwood	....	....	....	....	....
5 Other produce	....	....	....	....	....
(b) Removal by consumers and purchasers	11,570 3 0	13,378 12 6	4,756 12 0	3,192 0 0	32,897 11 6
(c) Stores, Tools and Plants	....	....	5,090 8 0	....	5,090 8 0
(d) Roads and Bridges	....	....	1,959 0 0	....	1,959 0 0
(e) Rates and taxes	....	....	85 10 0	....	85 10 0
(f) Buildings	....	79 0 0	5,746 12 0	....	5,825 12 0
(g) Regeneration—					
1 General	....	15,416 15 0	173 0 0	....	15,589 10 0
2 Development Schemes	....	38,360 0 0	....	....	38,360 0 0
(h) Fire protection	....	431 2 0	....	....	431 2 0
(i) Other works	....	....	115 0 0	....	115 0 0
Total ..	11,570 3 0	67,700 12 0	17,926 10 0	3,192 0 0	....
B. Establishment—					
(a) Pay	13,621 10 0	54,923 5 0	7,831 3 0	2,579 7 9	78,955 9 0
(b) Allowances and Honorarias	11,801 10 0	24,471 9 0	6,459 1 0	2,604 0 0	45,336 4 0
(c) Contingencies	....	8,773 6 6	31 6 0	....	8,804 12 6
Total ..	25,423 4 0	88,168 4 6	14,321 10 0	5,183 7 0	..
				Grand total ..	2,33,486 4 0

APPENDIX XXII.

(Vide paragraph 308.)

Details of Stock Mapping of Class III Reserved Forests.

Name of the range.	Name of the reserved forests.	Total area. Notified area.	Total area. Planimetered area.	Classification of forests into types. R.A.	I A.	I B.	II Aa.	II Ab (i).	II Ab (ii).	II B (a).	II B (b).	Unfit areas.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
		ACS.	ACS.		ACS.							ACS.
Sathyavedu Range	1. Ugumudi and extension.	640.0	901.7	..	341.6	..	..	..	..	..	..	(S) 5.8 (T) 20.5 (K) 346.9
	2 ugulam and extension.	824.0	756.7	..	..	..	..	649.5	..	..	..	(T) 8.1 (R) 99.1
	3 Memalur and extension.	639.1	726.1	17.0	706.7	..	..	..	..	..	..	(T) 2.4
Trivellore Range	1 Siruvada	382.0	372.4	..	372.4	..	..	..	..	..	..	..
	2 Palavakkam and extension.	3,196.0	3,097.5	514.9	661.0	..	..	..	297.0	..	..	(T) 45.0 (G) 1,579.6
	3 Manali	1,354.0	1,281.0	1,204.0	..	..	..	..	..	..	..	(T) 77.0
	4 Senjiagaram	325.0	325.0	..	..	..	..	..	..	..	..	(G) 325.0
	5 Erumaivettipalayam	532.0	542.0	347.6	..	..	..	..	..	159.4	..	(T) 10.0 (R) 25.0
	6 Mailapur and extension.	1,124.3	1,141.3	518.3	..	..	..	..	162.5	438.5	..	(P) 22.0
	7 Vembudu	839.0	1,024.2	..	540.0	..	..	..	..	484.2	..	..
	8 Nayapakkam and extension.	1,168.0	1,158.0	160.0	..	..	..	..	..	998.0	..	..
	9 Pullarambakkam and extension.	954.0	964.0	130.0	..	..	..	..	..	87.5	..	..
Tambaram Range	1. Mannur	553.0	552.9	439.6	..	..	..	*02.2	..	..	..	(T) 0.9 (G) 4.2 (K) 6.0
	2. Puddupper	359.0	344.8	..	..	..	..	..	..	..	..	(T) 10.9 (R) 33.9
	3. Erumaiyur	170.0	162.5	..	..	..	..	..	..	..	..	(B) 1.6 (R) 160.9
	4. Pulikoradu	185.0	184.8	..	..	..	..	40.8	..	..	..	(R) 144.0

* 15.0 acres building 731.5 submerged in water.

APPENDIX XXII.

Details of Stock Mapping of Class III Reserved Forests—cont.

	Name of the range. (1)	*Name of the reserved forest.* (2)	*Total area.* *notified aria.* (3)	*Plani-matered aria.* (4) ACS.	*Classification of forests into types.* *R.A.* (5)	*I-A·* (6)	*I-B·* (7)	*Ib-A (a)* (8)	*II-A (b)* (i) (9)	*II-A (b)* (ii) (10)	*II-B (a)* (11)	*II-B(a)* (12)	*Unfl areat.* (13) ACS.
Tambaram Range—*cont.*	5 Tambaram	228·6	229·7	32·3	..	..	..	..	..	..	..	(R)	197·4
	6 Nanmangalam and extension.	676·0	644·0	150·0	..	..	..	182·5	..	..	255	(K) (R)	40·0 16·5
	7 Maganiyam	955·0	996·4	511·3	..	..	..	..	245·4	..	215·3	(T) (P) (K)	19·6 3·8 1·0
	8 Maduraipakkam ..	451·0	451·3	..	..	..	..	283·3	..	..	..	(T) (K)	21·4 146·6
	9 Perambakkam	113·0	114·2	..	..	..	..	..	..	..	54·0	(C) (G)	27·0 33·2
	10 Vadakkupattu and extension.	710·0	713·2	500·5	..	..	..	..	195·5	..	..	(K)	17·2
	11 Vattambakkam and extension.	814·0	783·6	1·0	..	..	..	720·2	..	..	..	(K) (T)	53·5 5·6
	12 Gudalur and extension ..	2,277·0	2,470·0	1,910·6	..	..	..	134·5	..	221·6	..	(R) (T)	189·9 13·5
	13 Vandalur and extension.	2,896·0	2,714·6	2,067·9	..	..	..	..	..	..	..	(K) (T) (R)	93·5 25·8 527·4
	14 Eumili and extension ..	1,205·7	1,196·5	542·8	..	..	..	92·3	..	..	..	(K)	52·6
	15 Nallur	903·0	914·5	640·0	..	..	..	..	..	..	..	(G) (T) (K) (R)	161·1 43·8 27·7 41·9
	16 Unamanjeri	759·0	748·2	317·0	..	..	..	..	..	..	..	(T) (R)	12·3 18·9
Kelambakkam Range.	1 Sonalur and extension ..	1,365·0	1,372·2	977·2	..	..	..	395·0	..	..	..		..
	2 Mambakkam and extension.	1,278·0	1,312·7	1,142·2	..	..	..	153·0	..	..	..	(K)	17·5
	3 Kulathur and extension.	1,866·0	1,853·0	10·0	..	..	..	200·0	..	..	..	(K)	1,643·0
	4 Kalvoy	72·0	67·5	..	..	..	..	..	..	..	67·5		..
	5 Kayar and extension ..	1,109·0	1,070·1	500·1	..	..	..	55·0	..	..	..	(K)	515·0

6 Taiyur	1,515.0	4,455.5	675.7	..	..	..	178.0	..	..	..	(K)	601.8
7 Sirukundram and extension.	1,490.0	1,451.2	449.9	..	..	..	..	111.8	..	844.0	(K) (G)	32.0 13.5
8 Anjur and extension ..	1,627.0	1,634.7	408.6	39.1	..	..	..	61.9	925.9	..	(R) (K)	187.0 17.2
9 Vallam and extension ..	1,726.0	1,752.4	..	..	..	..	..	640.5	..	963.8	(R) (T)	145.0 2.3
10 Senkunram and extension.	1,295.0	1,202.3	978.9	..	60.6	..	..	..	147.8	..	(T)	21.0
11 Tiruthei and extension. ..	851.0	800.2	625.0	..	129.1	..	..	..	—	28.5	(K) (T) (G)	3.4 7.2 7.0

NOTE.—(i) Total of columns (5) to (13) is equal to the figure given in column (4).

(ii) Expansions of the abbreviations in column (13) are—

(K) = Kallar area.
(T) = Tank area.
(G) = Gravally area.
(R) = Rocky area.
(B) = Blank area.
(P) = Patta area.
(C) = Conservancy block.
(BS) = Buildings.

APPENDIX XXIII.

(Vide paragraph 309, etc.)

Details of Control Records.

Control Forms.

FORM I.

Control of regeneration and record of yield in cashew working circle.

Name of series :

Prescribed.—One coupe in each series will be clearfelled in strips and regenerated with cashew (Vide paragraph numbers 354 to 359).

Prescribed.			*Done.*		
Year.	*Name of Reserved Forest.*	*Area in acres.*	*Year.*	*Area in acres.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)	(6)

NOTE.—(i) separate forms will be maintained for each series.

FORM II.

Control of cultural and tending in cashew working circle.

Name of series :

Prescribed.—Cultural and tending operations will be carried out as prescribed. (Vide paragraph numbers 373 to 376).

Prescribed.			*Done.*		
Year.	*Name of Reserved Forests.*	*Area in acres.*	*Year.*	*Area in acres.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)	(6)

NOTES.—(i) A separate form will be maintained for each series.
(ii) Only the weedings during the first two years will be entered in this Form.

FORM III.

Control of harvest of cashewnuts in cashew working circle.

Name of the series :

Prescribed.—Sale of the usufructs of the cashew plantations from the sixth year onwards (vide paragraph No. 383).

Prescribed.			*Done.*					
					Yield in tons.			
Year.	*Name of Reserved Forest.*	*Area in acres.*	*Year.*	*Area in acres.*	*Kind.*	*Quantity in tons.*	*Revenue realised.* RS. NP.	*Remarks.*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	8)	(9)

NOTE.—A separate form will be maintained for each series.

FORM IV.

Control of felling and record of yield in Rehabilitation working circle.

Name of method.

Name of the series :

Prescribed.—One coupe each series will be regenerated by the method prescribed for it (vide paragraph No. 419).

Prescribed.			*Done.*					
Year.	*Name of Reserved Forest.*	*Area in acres.*	*Year.*	*Area in acres.*	*Yield in tons.*		*Revenue realised* RS. NP.	*Remarks.*
					Kind.	*Quantity.*		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

NOTE.—A separate form will be maintained for each series.

FORM IV (*a*).

Control of Regeneration operation in Rehabilitation Working Circle.

Name of method.

Name of regeneration technique.

Name of series :

Prescribed.—Regenreation operations will be carried out as prescribed for each method and each technique (vide paragraph numbers 419 to 440).

Prescribed.			*Done.*		
Year.	*Name of Reserved Forest.*	*Area in acres.*	*Year.*	*Area in acres.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)	(6)

NOTE.—Separate form will be maintained for each series in each of the regeneration techniques and method.

FORM NO. V.

Control of Cultural and tending operations in Rehabilitation Working Circle.

Name of method.

Name of Regeneration technique.

Name of series :

Prescribed.—Cultural and tending operations will be carried out as prescribed (vide paragraph numbers 441 to 447).

Prescribed.			*Done.*		
Year.	*Name of Reserved Forest.*	*Area in acres.*	*Year.*	*Area in acres.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)	(6)

NOTE.—1. Separate forms will be maintained for each series in each of the regeneration techniques and method.

Form VI.

Control of Felling and yield in Fuel Working Circle.

Name of series:

Prescribed.— Clear felling of one coupe for year (vide paragraph No. 475).

Prescribed.			Done.					
					Yield.			
Year.	*Coupe numbers.*	*Area in acres.*	*Year.*	*Area in acres.*	*Kind. in tons.*	*Quantity.*	*Revenue realised.*	*Remarks.*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
							RS. NP.	

Note.—(1) A separate form will be maintained for each series.

Form VII.

Control of collection of Minor Forest Produce in Minor Forest Produce Working Circle.

Prescribed.—Collection of Minor Forest Produce for each range and other leased units annually to purchasers (vide paragraph number 497).

Prescribed.		Done.				
			Yield.			
Year.	*Lease unit.*	*Year.*	*Kind.*	*Quantity.*	*Revenue.*	*Remarks.*
					RS. NP.	

Note.—(1) Separate forms will be maintained for each range.

Form VIII.

Plantation Journal and ledger for Cashew Working Circle.)

(Vide paragraph number 543.)

1 Sketch of the plantation.

2 (*a*) Series name.

(*b*) Area in acres.

3 Method of formation with dates-

(*a*) Cutting planting lines.

(*b*) Earth work as digging trenches for weathering soil, after aligning.

4 Method of planting with dates—

(*a*) Formation of sources or pits and dibbling cultural operations.

(*b*) Replacement of casualities.

5 Tending operations—

(*a*) Thinning.

(*b*) Miscellaneous.

6 Result of enumeration of survivals under dates.

7 Record of rainfall data-monthly total and number of rainy days per month.

8 General notes on the condition of the plantation by inspecting officers.

9 Plantation ledger showing monthly record of expenditure for the various items under which estimates has been sanctioned.

FORM IX.

Nursery journal and ledger.

1 Locality with a sketch.
2 Size of nursery.
3 Number of beds.
4 Size of beds.
5 Preparation of beds, including manuring.
6 Date of sowing and quantity of seeds sown.
7 Method and amount of watering and tending.
8 Dates of removal of plants and number of plants removed.
9 Cost of production of seedling per 1,000.
10 Ledger cost.

Year and month.	*Cost of formation.*				*Sowing.*					*Remarks.*
	Levelling.	*Fencing.*	*Manuring.*	*Formation of beds.*	*Construction and repairs of wells.*	*Cost of seeds.*	*Sowing.*	*Watering cost.*	*Progressive total.*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

FORM X.

Record of Works.

Prescribed.			*Done.*				*Remarks.*
Year.	*Locality and kind of work with Working Plan paragraph number.*	*Unit of area.*	*Year.*	*Locality and kind of work with Working Plan paragraph number.*	*Unit of areas.*	*Cost.*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

NOTES.—(1) Separate forms will be allotted for each working circle including 'Miscellaneous' but not each series.

(2) 'Measures prescribed', 'Measures suggested' and Measures carried out but not prescribed or suggested will be maintained separately.

(3) Works 'prescribed' or 'suggested' but not allotted to any particular year will be given separately at the end of entries for particular years.

FORM XI.

Deviation Statement.

Serial number.	*Control form and page reference.*	*Reference to Working Plan.*		*Nature of division.*	*Authority sanctioning.*
		paragraph.	*Prescription.*		
(1)	(2)	(3)	(4)	(5)	(6)

FORM XII.

Financial Statement.

Working circle with details.	*Revenue.*		*Remarks.*	*Working circle with details.*	*Expenditure.*		*Remarks.*
	Working Plan Forecast.	*Actuals.*			*Working Plan Forecast.*	*Actuals.*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Form XIII.

Control journal (combined for all working circles in both districts.)

1 General—	
(a) Casuarina conversion working circle (b) Fuel Plantation working circle (c) Manure leaf workingcircle (d) Grazing working circle (e) Minor Forest produce working circle (f) Protection Working Circle (g) Miscellaneous	Brief notes in narrative form regarding the suitability of areas allotted to each circle, work done during the year, arrears.
2 Regeneration—	
(a) Manurial Seedlings regeneration	Observation on important fuel species including mangrove species.
(b) Coppics regrowth in felled coupes.	
(c) Seed	Seed years, method of collection and storage seasons, sources retreatments, etc.
(d) Nursery	Nursery Technique for important species.
(e) Clearfelling, burning and preparation of area	General comments.
(f) Planting and sowing methods	Do.
(g) Weeding, soil working and pruning	Do.
(h) Watering casuarina plants	Remarks on quantity and frequency of watering.
(i) Dry technique of raising casuarina	Observations on success of raising casuarina without watering.
(j) Kumri regeneration	Kinds of field crops, thir influences on seedlings, obligations of kumridars earnest money deposits, etc.
3 Transport	Rates, sesons, routes in respect of bullock carts, motor lorries and water transport through canals.
4 Market conditions	Brief notes on prices of casuarina and other jungle wood fuel in Madras Chingleput, Tindivanam, Villupuram and Tirukkoilur and other centres.
5 Roads	General costs suggestions.
6 Buildings	Do.
7 Boundaries	Maintenance-cost-checking and verification-compilation of Register of Reserved Forests.
8 Injuries to the crop—	
(a) Fires.	
(b) Offences.	
(c) Insects.	
(d) Climates and their factors.	
9 Rainfall and climate	Brief notes for the division as a whole; statement of rainfall for all important revenue stations for the Forest Rain gauge stations.
10 Staff	Changes in strength of staff; possible lines of reduction of staff.
11 Labour	Daily rates of wages from men, women, and boy coolies; out-turn of work per day, for labour on artificial regeneration works, compilation of forests schdule of rates for artificial regeneration works.
12 Contractors	List of standing contractors, their viabilty and their good and bad work.
13 Camps.	
14 Shooting and fishing	Preservation of game.
15 Inspection notes on reserved forests	Complete file to be maintained.
16 Health	Brief notes with special reference to elephantiasis.
17 Experiments and research	Full details of observations and conclusions of experiments carried in the district, as also results of experiments of provincial silviculturist, where they are applicable to works in this division.
18 Miscellaneous.	
19 Financial results	Furnish financial statement for the year with suggestions for augmenting revenue and reducing expenditure, so as to make the division self supporting.

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